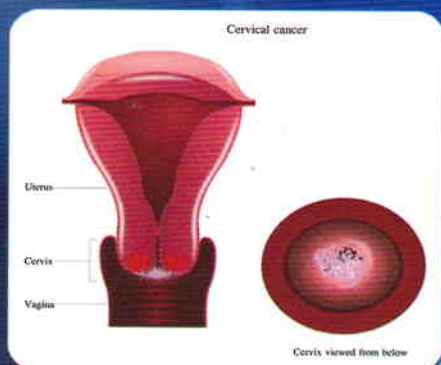


Elmandooh Gynecology and Obstetrics

GYNECOLOGY

B



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WhiteKnightLove

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Contents

Chapter 1: uterus



Fibroid	1
Endometrial Carcinoma	8
Uterine polyps	15
Choriocarcinoma	17
Endometriosis	20

Chapter 2: Cervix



CIN	26
Invasive Cancer CX	29

Chapter 3: Ovary



Classification	36
Complications	43
Treatment	46

Chapter 4: Vulva



Vulval dystrophy	48
VIN	50
Invasive Vulval Cancer	51
Vaginal Cancer	52

Chapter 5: Urogynecology



Prolapse	53
RVF uterus	62
Chronic uterine inversion	64
Stress urinary incontinence	65
Detrusor instability	70
Fistula	72

Chapter 6: Operative



Dilatation & Curettage	78
Hysterectomy	82
Hysteroscopy	84
Laparoscopy	86
Pelvi-abdominal mass	88
D.D.Of Vulva & Vagina	91
Radio- Chemo-therapy	97
Sexual disorders	99

PREFACE

My 2 Aims in this book to be SIMPLE and COMPLETE, so I save no effort for doing that.

It is hoped that the readers will find this book, presented in 4 volumes (**GYNECOLOGY A, B, OBSTETRICS A & B**), a useful source covering their necessary basic knowledge of **GYNECOLOGY AND OBSTETRICS**.

Your feedback and suggestions will be valuable to us, so we hope to contact us on Email

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Dr Mohamed ElmandooH

Chapter 1

Uterus

Fibroid

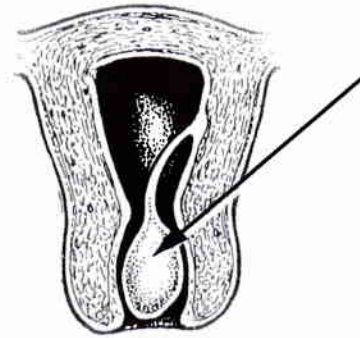
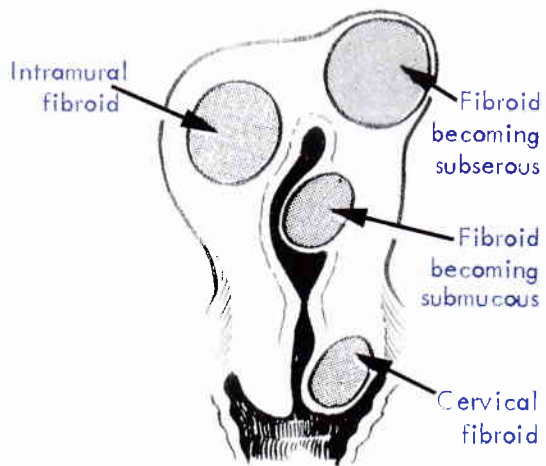
Endometrial Carcinoma

Uterine polyps

Choriocarcinoma

Endometriosis

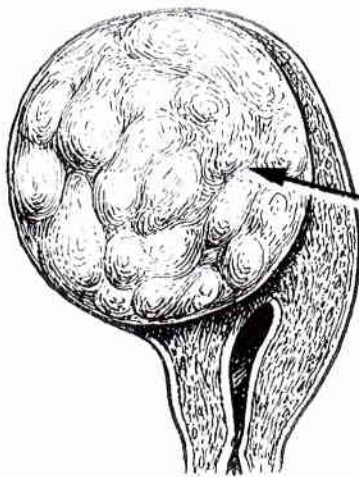
FIBROIDS



A fibroid polyp starts as a submucous fibroid and develops a pedicle.

NB- ♡

- The nearer the fibroid is to the uterine cavity, the more likely it is to be symptomatic regardless of its size
- Cervical fibroids are ccc by
 - Faster growth as they are nearer to *uterine artery*
 - Pressure manifestations are *larger than corporeal*



The cut surface is whorled, white and bulges.





Leiomyoma...Fibromyoma



Definition

- . Benign tumor of myometrium (smooth ms & fibrous t.)
- . 15 – 20 % (the commonest ♀ pelvic swelling ✓✓)
- . However → only few patients will be symptomatic

Etiology

-unopposed hyperestrogenemia.....
- . Age → 30-40 years
- . Parity → NG or low parities [□]
- . Race → dark races are commoner

Pathology

.....N.....SSSS.....CCC.....M.....

1) **Number** ⇨ solitary or multiple (may be hundreds)

2) **Site**

► **Corporeal (95%) ✓**

- All fibroids start as → **interstitial fibroids** (60%)✓
- If it grows towards peritoneal cavity → **subserous fibroid** (20%)
 - ↳ it may attach to surrounding structure → parasitic fibroid
- If it bulges into uterine cavity → **submucous fibroid** (15%)
 - ↳ it may protrude from the cervix → fibroid polyp

► **Cervical fibroid (4%)**

- Starts within the wall, then may
- Bulge into the cervical canal → **barrel-shaped cervix**
- Protrudes through the ectocervix → **cervical polyp**

► **Extrauterine (1%)**

- In broad ligament, round ligament, ovarian ligament

3) **Size** ⇨ from microscopic (seedling) to a huge size (filling perit. cavity)

4) **Shape** ⇨ spherical but as it enlarges it may be compressed

5) **Supply** ⇨ blood vessels enter through

- **CAPSULE** ∴ *central areas* are > liable to degeneration & necrosis while - *peripheral areas* are > liable to calcification
- **PEDICLE** (in polyps) ∴ usually tip of polyp → ulcerate → infection

6) **Capsule** ⇨ pseudo-capsule of compressed surrounding myometrium

7) **Consistency** . **FIRM** → the more fibrous tissue → the more firmer
 . **HARD** → if calcification occurs (womb stone)
 . **SOFT** → in pregnancy, degeneration
 . **VERY SOFT** (brain-like) → if sarcomatous changes occurs

8) **Cut section** ⇨ whorly appearance which is *paler* than surrounding muscle

9) **Microscopic exam.** ⇨ Mixture of smooth muscle & fibrous tissue

2 Uterus

Secondary (Pathological) changes Φ Φ

① ➡ Degenerative ⚡

Occur usually near menopause
All will lose their whorly appearance

1) Hyaline[Ⓜ] ✓✓ (myxomatous)

- Occurs in large fibroids in the center (↓ blood supply)
- The tumor → homogenous waxy soft material

2) Pseudocystic degeneration

- Area of liquefaction usually following hyaline degeneration
- The tumor becomes → soft

3) Fatty change

- More common at periphery (ppt of lipids from blood vessels)
- The tumor will be → yellow, greasy, soft

4) Calcification

- May follow fatty change → hard consistency (*womb-stone*)
- X-ray → eggshell appearance (onion-skin)

5) Red degeneration ☹

- ▶ Necrobiosis: *dead parts* –central– + *living parts* –peripheral–
- ▶ Etiology → It occurs in mid-trimesteric pregnancy (d.t. ↑ vascularity & hypercoagulability → venous obstruction → thrombosis)
- ▶ C/P → severe pain, vomiting, fever (absorption of Hb)
- ▶ TTT: . ANALGESICS (anti-PG), ANTIPYRETIC, FLUIDS, BED REST ± STEROIDS
 - . NEVER SURGERY (only if failed medical ttt → remove only affected fibroids)

6) Atrophy

- Usually occurs *after delivery* or *postmenopausal* (↓ E)
- Postmenopausal growth occurs if ☹ → *calcification, malignancy, HRT*

② ➡ Vascular ⚡

1) Torsion (axial rotation)

- Pdf → ① pedunculated.....② moderate-sized.....③ subserous fibroids
- Ppt → Due to trauma, sudden change in posture, pregnancy
- Once occurred → it maintains itself by the lashing effect of BV pulsations
 - ↳ **Acute torsion** ⇔ very painful (acute abdomen) up to → gangrene
 - ↳ **Chronic torsion** ⇔ it may adhere to neighboring organ (parasitic fibroid)

2) Telangiectasis (dilatation of blood vessels) → may rupture → internal hge

3) Lymphangiectasis (dilatation of lymphatics) → may rupture → dense adhesions

③ → Inflammatory ←

- **Submucous fibroid** → d.t. trauma & infection (esp after abortion or labor)
- **Fibroid polyp** → ulceration → infection
- **Subserous fibroid** → d.t. direct spread from nearby inflamed organ as appendix

④ → Malignant X ←

- **Rare** (0.5%) → the association of endometrial cr is > leiomyosarcoma
- **Suspected if** → . rapidly growing, invasive, metastasis
. tumor becomes painful, fixed
- **Macroscopic** → yellowish, soft, very vascular (brain like)
- **Microscopic** → > 10 mitotic figures / HPF is diagnostic of leiomyosarcoma

Clinical picture

👉 **Symptoms**ASYMPTOMATIC✓ (accidentally discovered).....

1. Uterine bleeding 👉 ➡ anemia (easy fatigability)

↳ Menorrhagia, polymenorrhagia

- Increased vascularity, size, surface area of endometrium
- Associated hyperplasia & hormonal disturbance

↳ Metrorrhagia

- Ulcerated submucous fibroid or polyp
- Associated endometrial carcinoma or rarely sarcoma

↳ Polymenorrhea → ovarian congestion

If..... Postmenopausal bleeding → suspect malignancy

If..... Amenorrhea: NEVER a feature → suspect pregnancy

2. Infertility

- Anatomical ➡ On tubes → blocking or stretching (or ectopic)
On uterus → prevents implantation (or habitual abortion)
On cervix → may obstruct the canal
- Physiological ➡ associated anovulation, endometriosis

3. Vaginal discharge . Leucorrhea (pelvic congestion)

- . Offensive or mucopurulent (infected ulcerated polyp)

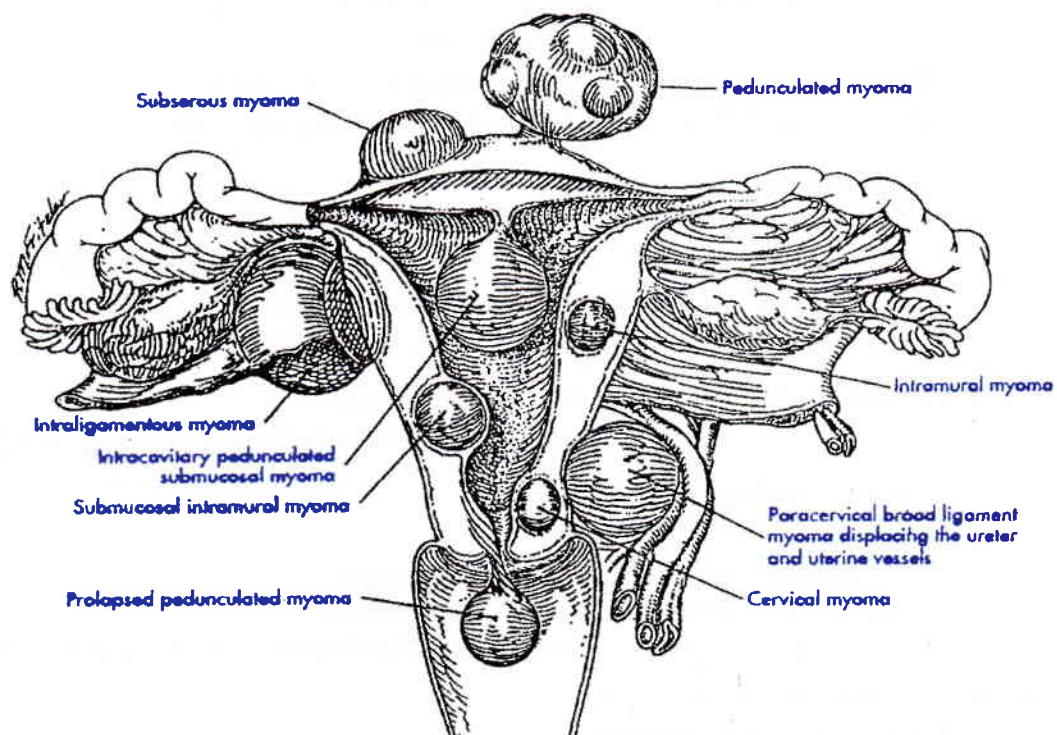
4. Swelling (abdominal or vaginal)

5. Pain

- . Congestive dysmenorrhea (pelvic congestion)
- . Spasmodic dysmenorrhea (esp. if submucous)
- . Acute abdomen in ➡Torsion....Inflammation....Red degeneration

6. Pressure symptoms.....

7. Pregnancy complications.....



Signs

- ▶ **General** → anemia (pallor)
 - ☛ Rarely - Polycythemia (erythropoietin from secretory fibroid)
 - Pseudo-Meig's syndrome → in large subserous fibroids
- ▶ **Abdominal**
 - If large → pelviabdominal mass which is usually
 - . Firm (soft if *degeneration, pregnancy, malignancy*)
 - . Mobile (moves with the movement of cx)
 - . Not tender (painful if *torsion, inflammation, red deg.*)
 - Auscultation → uterine soufflé may be heard
- ▶ **Vaginally**
 - Bimanual examination:
 - Symmetrically or asymmetrically (knobby) enlarged uterus
 - Cervical fibroid → small knob (uterus) on top of a large swelling
 - Speculum → fibroid polyp protruding from cervix

Complications of fibroid

- ☆ Pathological (2^{ry}) changes of fibroid
- ☆ Pregnancy complications
- ☆ Pressure effects
- ☆ Prolapse, chronic inversion
- ☆ Infertility (1/3 cases) & anemia

Differential diagnosis

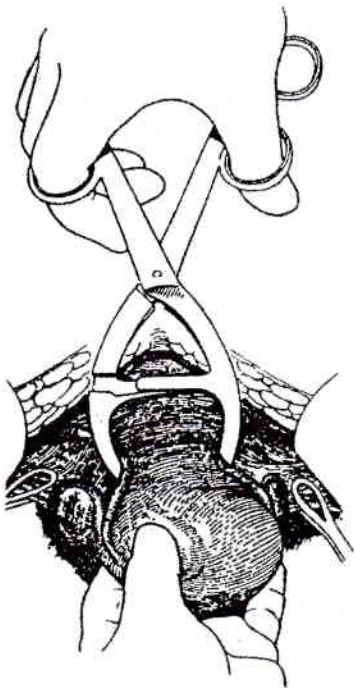
- D.D. of mass in . Pelvis.....Pelviabdominal mass } Symmetrical &
 - . Mass in DP } asymmetrical
 - . Broad ligament mass } enlargement
 - . Mass protruding from cx } of uterus
- Acute abdomen
- Causes of anemia

Investigations

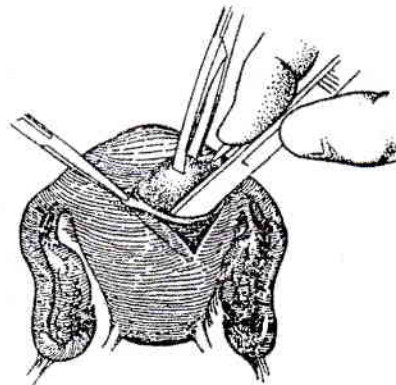
- *Preoperative*
 - Hb %.....✓✓
 - IVP.....detect pressure on ureter (cervical or br.lig. fibroid)
- *For diagnosis* → U/S (exact site, size, number) ±
 - Submucous fibroid → HSG, **HYSTEROSCOPE**, SONOHYSTEROGRAPHY
 - Subserous fibroid → **LAPAROSCOPY**
- D&C to exclude coexisting malignancy (if C/O postmenopausal bleeding)

TTT depends on ☺

- . Age.....Parity
- . Symptoms.....Complications
- . Signs.....size, No, type, site
- . Presence of.....pregnancy



Bonney's myomectomy clamp applied to the lower



Removing a solitary fibroid.

Treatment of fibroids



① Expectant ttt

- No symptoms, small size e.g.
- Near menopause → wait for menopausal atrophy

② Medical ttt

- 1- Young patient or near menopause
- 2- With *mild* symptoms & signs
 - . Iron & tonics for anemia
 - . Hormonal therapy → ↓ size (25-50 % after 3-6 months) e.g.
 - ↳ Anti-'E' (Tamoxifen)...Danazol...LH-RH analogues ✓
 - ↳ Progestins.....recently **not** proved to ↓ size of fibroid ✗
- 3- In pregnancy with red degeneration

③ Surgical ttt

➔ Polypectomy and D&C (for submucous fibroid polyp)

- Using ring forceps or volsellum to catch the polyp
- Twist several times
- Then D&C for the hyperplastic endometrium
- Can be done by endoscopy (HYSTEROSCOPY...or...LAPAROSCOPY)

➔ Myomectomy

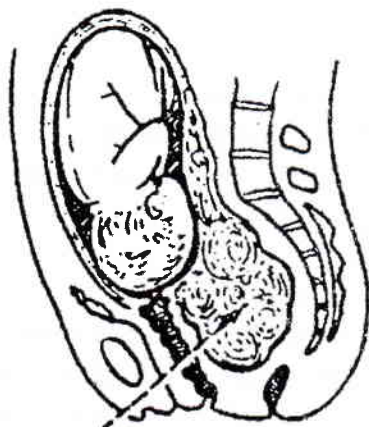
- Young patient
 - . *Symptomatic* (bleeding) with *signs* (> 12 wks)
 - . *Infertility* (HSG is done to document tubal patency)
- Myomectomy is a very BLOODY operation. Therefore ✗:

▶ PREOPERATIVE:

1. Better done postmenstrual
2. Elevate the Hb% & prepare blood
3. Some give Progestins, Danazol or GnRH for 3 – 6 months

▶ INTRA-OPERATIVE

1. Temporary occlusion of:
 - . Uterine → Bonney m. clamp or rubber catheter or assistant hand
 - . Ovarian → occlusion of infundibulo-pelvic lig. by ring forceps
2. May → inject vasopressin around the tumor to cause V.C.
3. Incisions
 - . Try to have all operation from a single incision
 - . Better to be anterior in the midline
 - . Close the bed of one tumor meticulously before opening the next



**Fibroid obstructing
labour**

→ Hysterectomy

....Commoner than myomectomy (easier, less blood loss)....

- Old patient > 40 years, completed her family
- Associated endometrial carcinoma
- Suspected malignant change
- Recurrence after *myomectomy*
- Uncontrollable haemorrhage in *myomectomy*
- Multiple fibroids if *myomectomy* would leave a useless mutilated organ

Fibroid with pregnancy

① Effect Φ Φ on pregnancy ♣

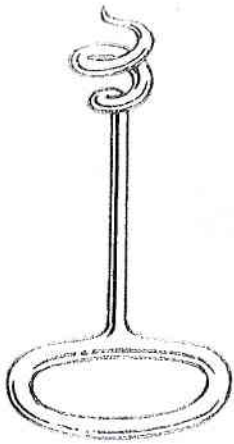
Pregnancy		Labor	Puerp.
EARLY	LATE		
1. Abortion	1. Pressure manifestations..	1 st stage → inertia	- S ₃
2. Ectopic (tubal stretch)	2. Mal-Presentation	2 nd stage → obstruction	- Inversion of uterus
3. Incarcerated RVF gravid Uterus	3. Non-engagement of Presenting part	3 rd stage → retained pl. (implanted on fibroid)	
	4. PTL		
	5. Pain (acute abd)		

② Effect on fibroid ♣

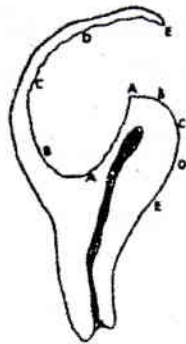
- *Due to increased hormones*
 - . ↑ size, vascularity
 - . Softening & degeneration → difficulty to identify by palpation
- *More liable to Complications (esp 2nd trimester)*
 - . RED DEGENERATION → acute abdomen
 - . SUBSEROUS FIBROID → torsion / intraperitoneal hge d.t. ruptured telangiectasia
 - . SUBMUCOUS FIBROID → extrusion or trauma → ulceration & infection

③ Management ♣ (conservative mainly)

Pregnancy	Labor	Puerperium
● <u>No Myomectomy</u> ● <u>If Red Degeneration</u> Rest, analgesics, antipyretics ● <u>Surgery Only If</u> - Failed medical ttt of red degeneration (rare) - If torsion or hge from subserous fibroid	● <u>No obstruction</u> Allow vaginal delivery ● <u>Obstruction</u> CS. No myomectomy □ except if pedunculated subserous ● <u>If old + multiple fibroids</u> Cesarean hysterectomy	● <u>Myomectomy</u> done after 3-6 m (the myoma will be less vascular)



Myoma screw
can be used
to steady
fibroid



The capsule left after the enucleation.



The 'hood' in place.



Extras



Q...What are the complications of myomectomy..?

- ↳ Haemorrhage....how to avoid ?
- ↳ Adhesions....avoid by ventrosuspension (round lig) & proper haemostasis
- ↳ Recurrence...follow up / progesterone
- ↳ Weak scar.....rupture in next preg

Q...What has Bonney done..?

- 1- Bonney myomectomy **Clamp**
- 2- Bonney myomectomy **Screw**
- 3- Bonney **Hood** operation (trans-mural) through the fundus
- 4- Bonney **elevation** test (SUI)

Q...How to remove posterior myoma..?

- 1- Trans-cavitary
- 2- Bonney-hood operation

Q...Indications for surgery in fibroids..?

- ↳ Symptomatic...severe hge. / Infertility
- ↳ Cervical fibroid...pressure sympt
- ↳ Large size....> 12-14 wks
- ↳ Pedunculated subserous (for fear of torsion)

Q...What are new lines for therapy..?

- ↳ **Myolysis**
 - . Thermal or Cryo-cautery (via laparoscopy)
 - . Disadv: →extensive adhesions, rupture uterus in next preg
- ↳ **Bilateral uterine artery embolization**
 - . Via fluoroscopic directed angiography → injection of gelfoam
→ 50 % ↓ in size
 - . Disadv: → bladder necrosis & fistula

Q...Special types of fibroid..?

- ↳ **Cervical** (ant or post to cervical canal)
- ↳ **Broad ligamentary**
in both: ureteric injury is a high risk (distorted anatomy)

Q...Rare Fibroids..?

- ↳ **Intravenous leiomyomatosis**: Fibroids are found in pelvic veins, due to direct spread or arise from SM of vessels → rapid metastasis (lung)
- ↳ **Leiomyoma peritonealis disseminata**: fibroids are found on peritoneum & omentum (benign condition)

Notes

Endometrial hyperplasia

Definition

Hyperplasia of *glands.....blood vessels.....stroma*
under the effect of UNOPPOSED HYPERESTROGENEMIA

Pathophysiology

Proliferative endometrium)

- . Cystic glandular hyperplasia → may stop, regress or proceed to→
- . Adenomatous hyperplasia (starts **focal**.....then.....**generalized**) →
- . Atypical adenomatous hyperplasia (Cytological or architectural atypia)

↳ Carcinoma of endometrium

Classification

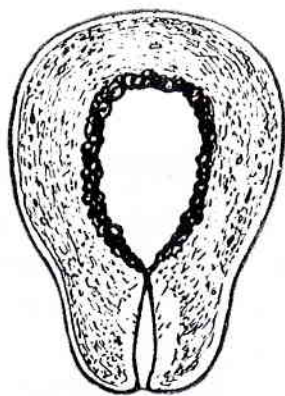
	Old name	Pathology	Malign. Risk
Simple hyperplasia	Cystic glandular H.	Glands → ↑ no, size → cystic → variable shapes (Swiss cheese appearance)	1%
Complex hyperplasia	Adenomatous hyperplasia	Glands → ↑ no → crowded with no stroma in between (back to back appearance)	3%
Atypical hyperplasia	Any type + atypia	Shows <i>ccc</i> of atypia: large dark nucleus, thick nuclear membrane, little cytoplasm	ASH→8(10%) ACH→29(30%)

Clinical picture

- *Sympt.* → perimenopausal bleeding
- *Signs* → symmetrically enlarged uterus
- *Investigations* → U/S, D&C ✓, hysteroscopy (more accurate)

Treatment

	Simple H.	Complex or Atypical H.
Child bearing period	1- Progestins . COC (with 'P' dominance) . Mirena, danazol, GnRH 2- Induction of ovulation (if there is infertility)	D&C (therapeutic) to be followed up after 3-6 m by - U/S - D&C (if bleeding persists)
Pre- or post-Menopausal	Progestins may be used	Hysterectomy



Diffuse Form



Localised Form

Endometrial Carcinoma

Definition

- . Malignant tumor of the endometrial lining of the uterus
- . The COMMONEST ♀ TUMOR 25–30%[□] (it is now > cr cx)[□]

Etiology

"Hyperestrogenemia" Φ

- . **Age** ⇨ 60 yrs i.e. postmenopausal i.e. related to E₁ (THE MAIN HORMONE)
- . **Class** ⇨ late marriage, low parity, no lactation (high class)
- . **Race** ⇨ white (hereditary & familial factors)
- . **Unopposed hyperestrogenemia**
 - *Endometrial hyperplasia* ✓✓
 - *Menstrual* → early menarche, anovulatory cycles (infertility), late menop.
 - *Endogenous* ⇨ PCO.....Estrogen secreting tumor[□]
 - *Exogenous* ⇨ ERT.....Tamoxifen (for >5 yrs)[□]
- . **Certain medical syndrome** → [Cancer corpus syndrome]
 - *Obesity* (conversion of Andr. → E₁, storage of E in fat)
 - *Diabetes mellitus* (anovulation is related → to insulin resistance)
 - *Hypertension*

Pathology

► Macroscopic

- *Localized form* → polypoid mass, ulcer, or infiltration
- *Diffuse form* → the whole uterine cavity is affected

► Microscopic[□]

- *Adenocarcinoma* (60%)
- *Adenoacanthoma* (20%)
- *Adenosquamous carcinoma* (5%)
- *Squamous cell carcinoma* (rare)
- *Carcinosarcoma* (v.rare)

Each is further graded according to Broder's classification

		% of undifferentiated cells
G₁	well differentiated	0 – 25%
G₂	moderately differentiated	25 – 50%
G₃	Poorly differentiated	> 50%

Spread

.....Generally late (80% are diagnosed at stage I_aG₁).....

[1] Direct

- Above ⇔ perforation.....cause of death is peritonitis
- Down ⇔ to cervix.....rapid spread as Ca Cx
- Lateral ⇔ to parametrium
- Anterior ⇔ to bladder.....malignant fistula
- Posterior ⇔ to rectum.....malignant fistula

[2] Lymphatic spread [□] → late (only 20%)

- Fundus → along tubal & ovarian lymphatics → paraaortic LNs
- Middle & lower part of the uterus
 - internal iliac, external iliac, common iliac LN
 - paraaortic LN → Cisterna chyli → thoracic duct → Virchow LN
- The cornu of uterus → *superficial inguinal* LN along *round ligament* [□]

[3] Blood (rare)

- Brain → along the paravertebral plexus
- Vagina → esp below ext. urethral meatus

Stages [□]**Surgical Staging (Laparotomy) --- FIGO 1988**

	Grades (each one can be divided into G-1.2.3.)	
Stage I (limited to corpus)	A	limited to endometrium
	B	Invasion < ½ Myometrium
	C	Invasion > ½ Myometrium
Stage II (Extension to cx)	A	Endocervical glandular involvement only
	B	Cervical stromal invasion
Stage III	A	Serosal involvement ± positive peritoneal cytology ± adnexal involvement
	B	Vaginal involvement
	C	LN involvement
Stage IV	A	Bladder or rectum infiltration
	B	Distant organs

Clinical picture

► Symptoms

1) Bleeding

- Postmenopausal (80%) [■] → considered cr endomet till proved otherwise 
- Premenopausal (5%) [■] → uncommon (d.t. PCO, E abuse, feminizing tumors)

2) Discharge

- Mucoid → from malignant endometrial glands
- Serosanguinous → surface ulceration
- Purulent → 2^{ry} infection

3) Pain

- Intermittent colicky lower abdominal pain
- Constant lower abdominal pain → pyometra
- Rarely → somatic or visceral pain

4) Cachexia (weight loss, anorexia, anemia)

► Signs

1) General

- Anemia, cachexia, metastasis (Wirchow LNs) 
- Obesity, DM, Hypertension (association)

2) Abdominal

- No pelviabdominal mass (except if → *associated fibroid* or *pyometra*)
- Metastasis (palpate liver & kidney)

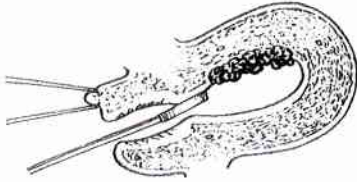
3) Local

- Bimanual 
 - . usually uterus is small (postmenopausal)
 - . may be symmetrically enlarged
- P/V 
 - . parametrial extension
 - . vaginal metastasis
- PR  rectal & uterosacral lig. infiltration

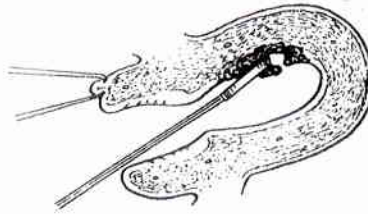
Complications & cause of death:

- Peritonitis ✓ (d.t. perforation of the uterine wall)
- Pyometra
- Malignant fistula (with bladder, ureter, rectum)
- + Hemorrhage / infection / cachexia

Fractional Curettage



1. A cervical smear is taken, the canal is dilated a little, and curettings taken from the region of the internal os.



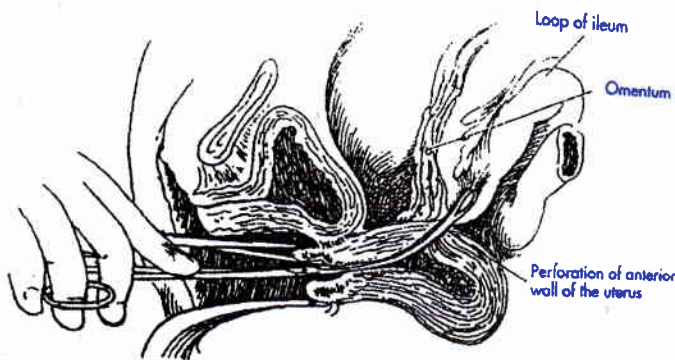
2. Dilatation is continued and a larger curette is used to obtain a biopsy from the cavity.

Differential Diagnosis of Postmenopausal Bleeding

Cause of Bleeding	Frequency (in %)
Endometrial atrophy	60-80
Exogenous estrogens/HRT	15-25
Endometrial cancer	10
Endometrial or cervical polyps	2-12
Endometrial hyperplasia	5-10
Miscellaneous*	10

Note: * For example, cervical cancer, uterine sarcoma, trauma.

Source: Adapted from Hacker N, Moore JG. *Essentials of Obstetrics and Gynecology*. Philadelphia: WB Saunders, 1998:635.



Perforation of a Retroverted Uterus by Ovum Forceps with Crushing Injury to Bowel and Omentum

Investigations

1. For screening ⇨ TV. US (endometrial thickness:- 4–5 mm) if more → biopsy[Ⓜ]

2. For diagnosis ⇨ Endometrial biopsy

a. Fractional curettage (best)

- Curette the cervix first then the uterus
- Fails to detect 10% of cases[Ⓜ]
- Differentiated from cervical carcinoma by PAS test

b. Jet irrigation & suction

- Using plastic cannula → inject 1–2 ml of saline
- Collect the washed out tissues & cells for pathology

c. Aspiration cannula → Pipelle

- Done without anaesthesia
- Outpatient procedure
- Satisfactory results with less liability for perforation

d. Hysteroscopy (very useful[Ⓜ]) direct inspection & biopsy 👍

3. For Preoperative preparation - Complete blood picture, Hb %
- Liver & Kidney function tests
- Urine analysis / Fasting blood sugar
- ECG / chest X-ray

4. For staging

- Radiology → IVP, barium enema, U/S, CT, bone scan, lymphangiography
- Endoscopy → cytology, proctoscopy, sigmoidoscopy

Differential diagnosis

- Postmenopausal & Perimenopausal bleeding
- Symmetrically enlarged uterus

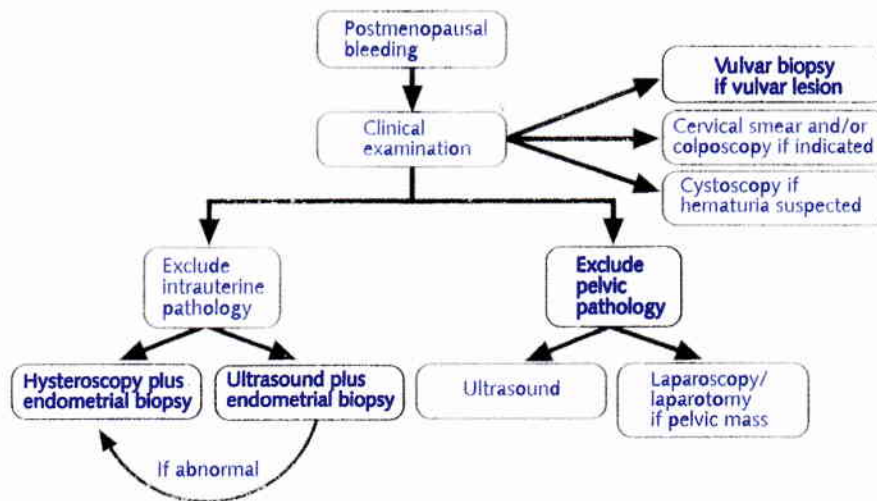
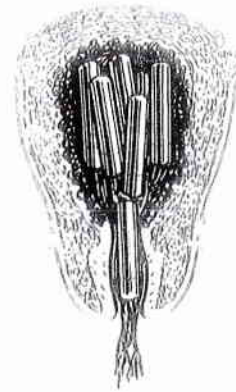
Treatment

↪ Prophylactic

- **Screening** for high risk groups[Ⓜ] → transvaginal U/S
- Do not use **unopposed** estrogen (ERT → HRT)
- Early & correct management of endometrial **hyperplasia**
- **D&C** must be done for any postmenopausal bleeding (if >4mm)

↪ Curative

Intracavitary radium is given, perhaps 50mg for two periods of 24 hours a week apart. This gives the ionising radiations the benefit of a good blood supply which is necessary for the greatest effect.



Algorithm for PMB.

⊕ Stage I ⇒ **TAH & BSO** (the commonest) ± selective lymphadenectomy

* Ovaries must be removed as

- . They may contain microscopic metastasis
- . E' produced can stimulate growth of residual lesion

* Radiotherapy (rare; why?)

- Postoperative external pelvic or vaginal radiation only in *high risk group* if:

Mac . The tumor infiltrates > 1/2 myometrium

- . LN involvement

Mic . Grade II or III

- . Papillary or clear (serous) cell carcinoma

- Results of radiotherapy ALONE are < surgery (if unfit for surgery)

- . Whole cavity & vaginal vault (radium or caesium)
- . To be followed by external irradiation (5000 cGy)

⊕ Stage II ⇒ **TAH & BSO** Followed by **Radiotherapy**

- This line of treatment gives same results as in "**Radical hyst.✓**"
- But is preferred as the patient is → old ± obesity, DM, hypertensive

⊕ Stage III ⇒ **Radiotherapy alone**

- The uterine cavity & vaginal vault are packed with radium or caesium followed by external pelvic irradiation
- This may be followed By TAH & BSO if tumor becomes resectable

⊕ Stage IV ⇒ **Palliative** (advanced, recurrent)

* Palliative hormonal therapy

- 80% of endomet. cr. are E dependent (steroid receptor +ve⁺)
- Medroxy progesterone acetate (Depoprovera) 300 mg/d for 3 months

* Palliative chemotherapy → Paclitaxel, Carboplatinum

* Palliative radiotherapy → for recurrent pelvic masses & distant metastasis

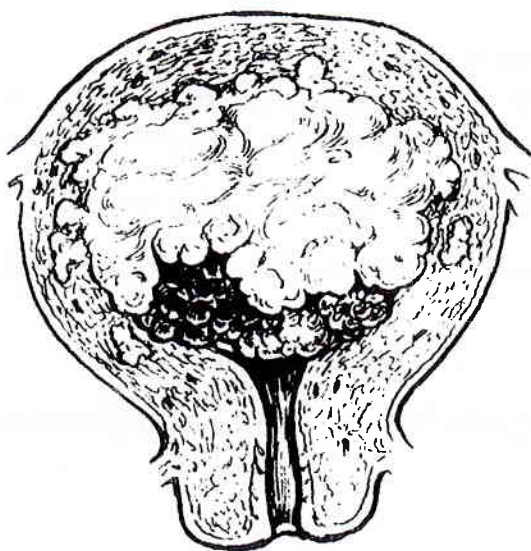
Prognosis:

Good ✓ (better than cr cx) d.t.

Early & easy diagnosis	Slow growth	Well differentiated	Late LN affection
------------------------	-------------	---------------------	-------------------

5 year survival rate

Stage I	Stage II	Stage III	Stage IV
80-90%	60-70%	30-40%	0-20%



A diffuse infiltrating sarcoma.

Sarcoma of uterus

Incidence

- . Very rare tumors → 2% of uterine cancers
- . Age → 55 years (however sarcomas can occur at young age)

Etiology

unknown (same pdf as in end. carcinoma) + previous pelvic

Classification

Pure homologous sarcomas (the tumor is composed of tissues of uterine origin)	Pure heterologous sarcomas (tumor is composed of tissues foreign to uterus)	Mixed mesodermal tumors 'mixed mullerian tumor' 'Carcinosarcoma'
- Leiomyosarcoma - Fibrosarcoma - Endometrial stromal sarcoma - Angiosarcoma	- Chondrosarcoma - Osteosarcoma - Liposarcoma - Rhabdomyosarcoma	It is composed of malignant epithelium (carcinoma) and malignant stroma (sarcoma) <u>Either</u> - Homologous (carcinoma + homologous sarcoma) - Heterologous (carcinoma + heterologous sarcoma)
<u>Mixed sarcomas</u> - Mixed homologous sarcomas - Mixed heterologous sarcomas - Mixed homologous & heterologous sarcomas		

C/P & Investigations

- Pelviabdominal swelling (faster, softer, fleshy than fibroids)
- Bleeding, pain, pressure manifestations
- Definite diagnosis is by histopathology . Hge + necrosis
- . Mitotic figures >10 / 10HPF

Spread

- Blood ✓ (rapid) → LLBB
- Direct → invasion of tubes, ovaries, bladder, rectum, intestine
- Lymphatic → pelvic & para-aortic nodes
- Implantation → into the peritoneal cavity → ascites & omental masses

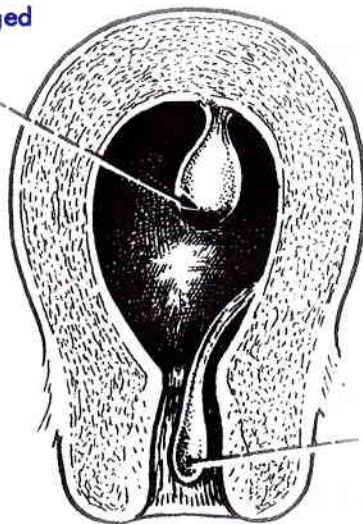
Treatment

- TAH & BSO ± adjunctive or palliative:
- Irradiation (pre-or post-operative)
 - Chemotherapy
 - Hormonal therapy (if +ve P. receptors)

Prognosis:

very very poor: 2 YSR → 50% (0 % will reach 5 YSR)

Engorged
tip of
polyp



The polyp may be visible in the external
os and there may be more than one.

Uterine polyps

Definition a pedunculated tumor

- . Attached to the uterine wall by a pedicle
- . Hangs freely in the cavity
- . May be extruded outside the cervical canal into the vagina

Classification

ΦΦΦ

Cervical	Corporal
- Mucous polyp ✓✓ [■]	- Adenomatous
- Inflammatory polyp	- Placental
- Fibroid polyp	- Fibroid
- Malignant polyp	- Malignant

Clinical picture

* Bleeding

- Postmenopausal or perimenopausal
- Menorrhagia / Metrorrhagia (ulceration)
- Contact bleeding (considered cx malig. until proved otherwise)

* Discharge

- Leucorrhea (pelvic congestion)
- Offensive (infection)

* **Pain** → colicky lower abdominal pain (uterus trying to expel it)

...O/E → may be felt or seen by speculum

Complications

- Infection (2^{ry} to trauma & ulceration)
- Malignancy (squamous metaplasia of epithelium) → rare[■]

Investigations

To differentiate between cervical & corporal polypi

1. **Sound** & pass it around the polyp:
 - If it passes around → corporal
 - If not → cervical
2. **Hysteroscopy** ✓
3. **HSG**
4. **Smear & colposcopy** (to exclude malignancy)

Treatment

☆ **Polypectomy** ± cauterization of polyp base ± D&C.

- Polypectomy is done by volsellum & twist several times
- D&C is done for associating pathology (hyperplasia)
- Send for histopathology (to exclude malignancy)

(I) Cervical polyps

1) Mucous polyp.....commonest cx swelling ^α

- ▶ **Cause** → chronic cervicitis → hyperplasia of endocx m.m.
- ▶ **Macroscopic** → simple, soft, slippery, small greyish red
- ▶ **Microscopic** →
 - . glands within loose CT stroma
 - . columnar epithelium in multiple hyperplastic layers

2) Inflammatory polyp

- ▶ **Bilharzial polyp**
 - . Bilharzial granulation tissue + inflammatory reaction around ova
 - . ± Bilharziasis of vagina & vulva → red, granular
- ▶ **T.B. polyp**
 - . Rare → usually T.B. forms ulcer
 - . If produces polyp → similar to malignant polyp

3) Fibroid polyps (more commonly corporeal)

4) Malignant polyps

- * **Carcinoma** → of cervix
- * **Sarcoma** of cervix (very rare) → sarcoma botryoides
- * **Mixed mesodermal tumor** of cervix → carcinosarcoma

(II) Corporal polyps

1) Adenomatous

- **Benign** tumor of the endometrial glands
- **May** be the result of adenomatous hyperplasia
- **Types** . Solitary (localized) = adenoma malignum
 - . Generalized (multiple)

2) Placental polyp

Remnants of incomplete abortion → small parts of chorionic villi surrounded by inflammatory reaction → adherent to uterine wall

- **History** → occur after recent TOP
- **DD** → choriocarcinoma

3) Fibroid polyp

4) Malignant polyp

- * **Carcinoma** → Endometrial / Choriocarcinoma
- * **Sarcoma** 1% → Sarcomatous change in fibroid polyp
- * **Mixed mesodermal tumor** → carcinosarcoma

Choriocarcinoma

Gestational trophoblastic Neoplasms (GTN, GTD, GTT)		
Benign	Malignant	
Vesicular mole (Hydatidiform mole)	Metastatic = Choriocarcinoma	Non-metastatic = Placental site trophoblastic tumor

Definition

- . Malignant tumor of the chorion (trophoblast)
- . Very rare → 1/50.000 (1/5.000 in Far East)

Types

- 1- **Gestational** after . **Vesicular mole** → 50%
 - . **Abortion, ectopic** → 25%
 - . **Delivery** → 25%
- 2- **Non-gestational** ⇔ ovarian

Pathology

☆ Macroscopic

- Uterus → - Localized or multiple hemorrhagic masses or polyps
 - Diffuse infiltrating mass
 - Intramural (-ve D&C)
- Ovaries → metastasis or theca lutein cysts (↑ HCG)

☆ Microscopic

- Sheets of malignant trophoblastic cells with extensive areas of HEMORRHAGE & NECROSIS (cause of death = hge. ± inf.)
- NO CHORIONIC VILLI (avillous pattern: DD → V.mole)

Spread

↳ **Blood** ⇔ early (**LUNG** 80%[±], **VAGINA** 30%, ovaries, **LIVER & BRAIN** 10%)

These metastasis

- May be larger than 1^{ry}, hemorrhagic, multiple
- May regress after removing 1^{ry}
- In lung → canon ball metastasis & hemoptysis

↳ **Local** ⇔ myometrium, tubes, ovaries

Notes

Staging

I (a,b,c)	II (a,b,c)	III (a,b,c)	IV (a,b,c)
Uterus	Pelvis	Lung	Other metastasis

- **A** → no risk factors } Risk factors:-
- **B** → 1 risk factor } . β -HCG > 100.000 mIU/ml
- **C** → 2 risk factors } . Duration of the disease > 6 m after preg.

Clinical picture

① **History**of recent termination of VM or pregnancy[□]

② Symptoms

- Vaginal bleeding ✓✓
 - Irregular / persistent (rarely amenorrhea d.t. to high β -HCG)
 - weeks / months from TOP (rarely occurs up to 2 years)
- Swelling → abdominal, vaginal, vulval
- Acute abdominal pain
 - Perforation of the uterus
 - Complicated theca lutein cyst
- Metastasis . CNS → ↑ intracranial ten
 - . Lung → hemoptysis
 - . Liver → jaundice

③ Signs

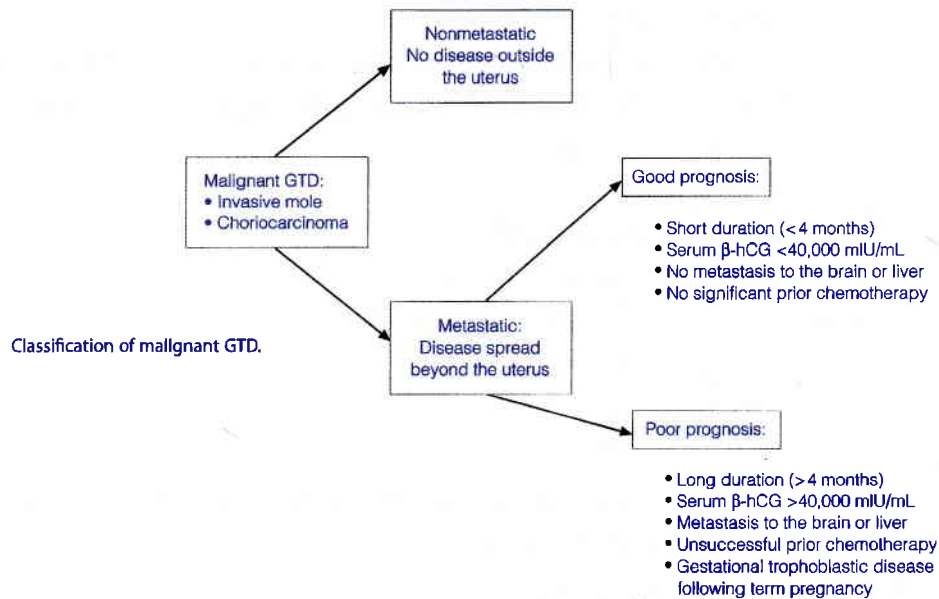
- General → cachexia, metastasis, hyperthyroidism (chorionic thyrotropin)
- Abdominal → pelviabdominal mass
- Pelvic → .Uterus → ± enlarged
 - . Ovaries → ± enlarged
 - . Metastasis → in vulva & vagina

Investigations

- D_&C → MUST BE DONE FOR EVERY PATIENT WITH BLEEDING AFTER RECENT TOP
- β -HCG → diagnostic.....prognostic.....follow up ttt
- For extent & spread
 1. X-ray (esp CHEST)
 2. U/S, CT, MRI
 3. Doppler (esp intramural)

Classification according to FIGO (2000) ✂

	0	1	2	4
Age	< 40	> 40		
Antecedent preg.	VM	abortion	FT preg ⁿ	
Interval till ttt	< 4 m	4 – 8	8 – 12	> 1 yr
Serum β-HCG	<1.000	1000-10.000	10 – 100.000	> 100.000
Tumor size		3 – 5	> 5 cm	
Metastasis site	Lung	Spleen, kid.	GIT	liver, brain
Metastasis No		1 – 4	4 – 8	> 8
Previous failed drug			1	≥ 2



KEY POINTS

1. PSTTs are extremely rare and arise from the placental implantation site.
2. These tumors are characterized by the absence of villi and the proliferation of cytotrophoblasts.
3. PSTTs spread by invasion into the myometrium and blood vessels.
4. Patients most commonly present with vaginal bleeding and persistently low levels of β -hCG.
5. PSTTs are not sensitive to chemotherapy, so they are treated by hysterectomy.

Treatment

1. Chemotherapy (mainly) ✓✓

** Classified Into

- ➡ The high risk group > 8 (poor prognosis) ➡ 70 % 5-YSR
 - Use combination chemotherapy, either:
 - MAC (Methotrexate, Actinomycin-D, Cyclophosphamide)
 - EMA-CO (Etoposide, ---, ---, ---, Oncovin)
 - Chemotherapy is given for as much as body tolerates toxicity till 3 -ve β -HCG is achieved → repeat for 3 more courses
- ➡ The low risk group < 4 (Good prognosis) ➡ 97 % 5-YSR
 - Use single agent chemotherapy
 - Methotrexate or Actinomycin-D
 - Till β -HCG is -ve then repeat for one more course

** Follow up for 2 years by monthly β -HCG

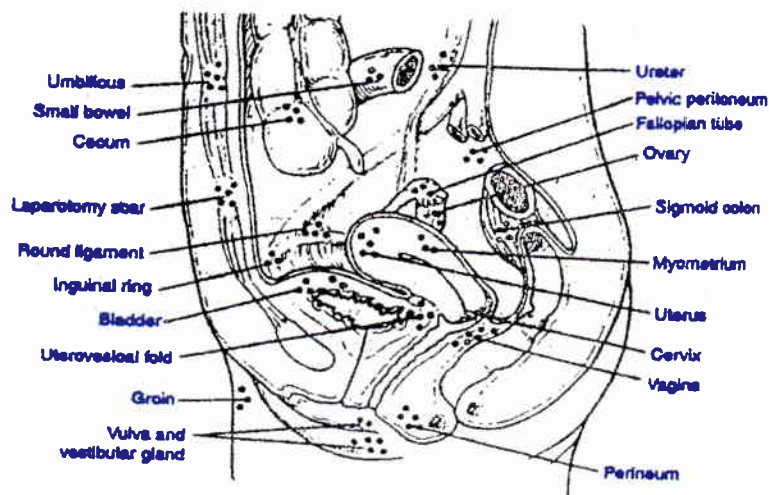
2. Surgery

- ▶ Hysterectomy if
 1. Chemotherapy intolerance (to ↓ its dose, time, side effects)
 2. Complications (severe bleeding, internal hge, ruptured theca lutein cysts)
 3. Completed her family
 - It is done during chemotherapy to ↓ dissemination of tumor emboli
 - Ovaries can be left in young age (ovarian metastasis are rare)
- ▶ Localized excisions for
Residual metastasis in VAGINA, LUNG, BRAIN, LIVER after chemotherapy

3. Radiotherapy

Rare (for brain or liver) If → - Severe hge. due to necrosis or
- Extensive resistant infiltration

- ¿ - What are criteria of possible GTN after VM .Q
- ¿ - Is pregnancy possible after GTN .Q
- ¿ - What is the recurrence rate .Q



- Evidence of retrograde menstruation ^{□□}
 - . Menstrual fluid is seen during laparoscopy
 - . Disease is found in most dependant parts of pelvis
 - . ^{↑^{ed}} endometriosis after experimental cx obstruction (monkeys)
 - . Endometrial tissues could be implanted

- It occurs normally in 70–90% of women ∴ ↗

Immunological theory. Altered immunity with failure to engulf & remove the endometrial implants. This is evidenced by finding excessive peritoneal macrophage activity with ^{↑^{ed}} cytokines as α -TNF

✿ Endometriosis ✿

Definition

- Presence of functional endometrial tissue (GLANDS & STROMA)
- Outside its normal site (lining of the uterine body)
- This ectopic endometrium is 'E' sensitive & liable to cyclic changes

① INTRA-UTERINE	② EXTRA-UTERINE ΦΦ		
	★ Pelvic		★ Extrapelvic
ADENOMYOSIS presence of endometrial glands within myometrium	Genital	Extragenital (1%)	- Scars of laparotomy - Umbilicus - Other viscera:- . gall bladder . appendix . lung, nose
	- Ovaries ✓✓ (commonest) - Pelvic peritoneum ✓ (DP) - Ligaments → uterosacral - Rectovaginal septum - Vulva & vagina	- Rectum ✓ - Sigmoid - U. bladder - Ureters	

Predisposing factors "Hyperestrogenemia".....

- **Age** → CBP
- **Race** → Caucasian.....**Social class** → high
- **Parity** → low parity or infertile
- **Genetic** → risk is ↑^{ed} with +ve family history

Etiologyunknown..... "the disease of theories".....

- 1- **Retrograde menstruation of Sampson.** [□] (transplantation theory)
 Regurgitation of endometrial fragments along the tube to be *implanted* on pelvic organs & peritoneum (esp ovary & DP)
- 2- **Coelomic (serosal) metaplasia of Meyer.** Both peritoneum & uterine mucosa share the same embryological origin. So endometrium ⇔ peritoneum (cause unknown; may *induced* by hormones? irritation?)
- 3- **Lymphatic or hematogenous spread of Halban.** (explains extrapelvic)
 Fragments of endometrium can spread to reach any part of body
- 4- **Implantation** - Abdominal scar after → CS / Myomectomy
 - Vaginal or perineal scar after → delivery / D&C / HSG
- 5- **Diverticular theory of Cullen.** (explains *adenomyosis* only)
 Deep growth of the glands with subsequent separation

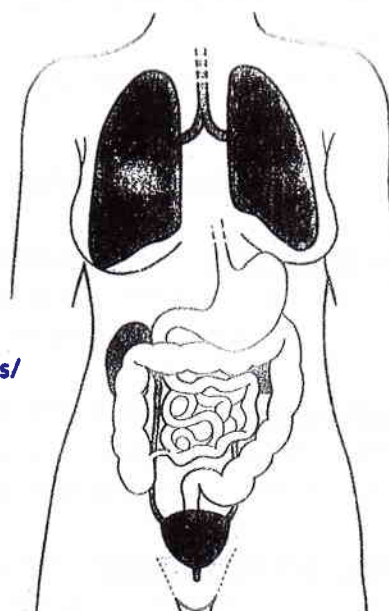
Lungs

Urinary tract

Large bowel

**Surgical scars/
umbilicus**

Pelvis



Cyclical hemoptysis

**Cyclical hematuria
ureteric obstruction**

**Cyclical tenesmus
Cyclical diarrhea
Cyclical rectal bleeding
Colonic obstruction**

**Cyclical pain
Cyclical bleeding**

**Secondary dysmenorrhea
Deep dyspareunia
Continuous pelvic/
lower abdominal pain
Menstrual abnormality
Infertility**

Symptoms of endometriosis.

Clinical picture

↳ Symptoms.....triad

① **Pain** (*pain is not related to extent of the disease* [□])

- ⊕ **Dysmenorrhea** (2nd spasmodic)
 - Starts few days < menstruation (congestion)
 - ↑es in severity during menstruation
 - Reaches maximum at the end of menstruation
 - ↓es gradually few days > menstruation
- ⊕ **Deep Dyspareunia** (fixed RVF [□], EO in RV septum / DP)
- ⊕ **Dysuria**
- ⊕ **Dyschazia**
- ⊕ **Deep –chronic– pelvic pain** (Pelvic congestion / ↑ PG)
- ⊕ **Dorsal pain –Backache–** (Affection of uterosacral ligaments)
- + Acute abdominal pain (Rupture of ovarian chocolate cyst)

② **Bleeding**

- Menorrhagia (*uterine congestion*)
- Polymenorrhea (*ovarian congestion*)

③ **Infertility** (1/3 cases)

- Adhesions → tubal kinking & obstruction } anatomy
 - ↳ surrounding the ovaries (LUFS)
- ↑ macrophages → ↑ PG (anovulation) } physiology
 - ↳ phagocytosis of sperms

Ectopic pregnancy may occur d.t. tubal adhesions
Habitual abortion may occur d.t. autoantibodies (APAs, ACAs)
Other rare sites:

- Renal → cyclic dysuria ± menouria (*Yousef syndrome*)
- GIT → cyclic dyschazia ± B/R
- Umbilicus → cyclic bluish tender nodule

↳ Pelvic examination (not all may be present)

- 1- **Uterus** → tender, enlarged, fixed RVF
- 2- **Ovaries** → tender, enlarged, fixed chocolate cyst
- 3- **D. pouch** → tender, thickened, nodular uterosacral ligaments
- 4- **Vagina** → tender, thickened, nodular rectovaginal septum
- 5- **Vulva** → may show bluish cysts



LAPAROSCOPY



Investigations

① LAPAROSCOPY Φ (MAIN STAY IN DIAGNOSIS) diagnostic & therapeutic

➡ Systematic review for pelvic / abd. cavities searching for pathology
→ biopsy is a must → to confirm the histopathology ^u

* Ovaries (bilateral in 50%)

- . Enlarged, thickened tunica albugenia
- . Surface → small dark brown spots, surrounding adhesions
- . Chocolate cysts (endometrioma) containing dark brown blood

* Pelvic peritoneum

- . Subtle lesions → powder burn, red spots, petichea, plaques
- . Dark brown vesicles → nodules surrounded by variable adhesions
- . Commonest site is DP → fixed RVF

➡ Classified by the **"AFS"** into 4 classes

Ø SIZE	Microscopic	< 1 cm	1 – 3 cm	> 3cm
ADHESIONS	No	Filmy	Dense + partial DP obliteration	Dense + complete DP obliteration
Peritoneum				
Ovaries				
Tubes				
SCORE	1-5	6-15	16-40	> 40
STAGE	Minimal (I)	Mild (II)	Moderate (III)	Severe (IV)

② Ultrasonography, MRI for accurate diagnosis

③ CA-125

- . Mainly for → follow up (early detection of recurrence)
- . Has D.D. → as it is produced by other coelomic products e.g...

④ If infertility → tests for ovulation & tubal occlusion

⑤ Other lesions

- Endoscopy for bladder, rectum
- Biopsy & **histopathology** for umbilical or implantation nodules

Differential diagnosis

- Frozen pelvis → TB....Pelvic malignancy....PID.....Extensive surgery
- Symmetrical or asymmetrical enlargement of uterus
- Ovarian chocolate cyst → endometrioid ovarian tumor, TOA

Q...What are new strategies for endometriosis therapy ?

If the C/O is pain

If the C/O is bleeding

If the C/O is infertility.....

- With no gross pathology $\Rightarrow$ induction of ovulation
- With gross pathology $\Rightarrow$ remove surgical first

Q...Can we give HRT after TAH & BSO for EØ ?

Q...What is the role of radiotherapy X ?

Q...What is Arias-Stella reaction ?

Def $\rightarrow$ localized hyperplasia of endometrial lining with large nuclei, secretory changes (pseudo-decidua^a)

Etiology $\rightarrow$ excess hormonal activity as in: ^a

- * Pregnancy (intra or extra – uterine)
- * Endometriosis
- * PCO
- * COC

Q...What are the anti-estrogenic drugs ?

Treatment

-depends on . Symptoms (pain, bleeding)
 . Presence of surgical removable lesions
 . Presence of infertility

① Prophylaxis ⇨ encourage early pregnancy ± COC

- EØ is progressive in $\frac{2}{3}$ cases
- Recurrence after ttt may occur in $\frac{1}{3}$ cases

② Medical ⇨ mild symptoms → analgesics, antiprostaglandins

③ Hormonal ⇨ severe symptoms ΦΦ

- ⇨ **Progestins** → given in *continuous* manner for 9–12 m → pseudopregnancy state (pseudodecidua^u) → atrophy of endometrium → amenorrhea.....✓✓

<u>Injection</u> → Depoprovera: 150 mg /month	} 1 st choice } – cheap } – same potency
<u>Oral</u> → MPA (provera) → 30 mg/d	
<u>COC pills</u> → use those with 'P' dominance	

- ⇨ **Danazol** → 400–800 mg/d for 6–9 months

- ⇨ **Gestrinone** → 1.25–2.5 mg twice / week for 6–9 m

- ⇨ **LHRH analogue** → Decapeptyl (Zoladex SC / 28 days)

④ Surgical

- ⇨ **Conservative** (if seeking fertility)

* Laparotomy or better by LAPAROSCOPY ✓

± Pre- & post- operative ADJUVANT HORMONAL SUPPRESSION ☞

- Removal or electric fulguration of localized implants
- Ovarian cystectomy for chocolate cysts
- Peritubal adhesiolysis
- LUNA (laparoscopic uterosacral nerve ablation)
- Plication of round ligament (to prevent re-adhesions)

- ⇨ **Radical** (TAH + BSO)

* Especially if old age + severe symptoms + failed above measures

⑤ Infertility

- If tubes not distorted by adhesions → induction of ovulation
- If adhesions are found → laparoscopic adhesiolysis
- If failed → ART

Summary of medical treatment of endometriosis

Drug	Mode of action	Side-effects
Progestins	Pseudopregnancy	Break-through bleeding, weight gain, edema, acne, abdominal bloating, increased appetite, decreased libido
Danazol	Pseudomenopause	Increased weight, break-through bleeding, muscle cramps, decreased breast size, hot flushes, emotional lability, oily skin, acne, hirsutism, headache, increased libido, hoarseness or deepening of the voice
GnRH analogs	Pseudomenopause	Hot flashes, break-through bleeding, vaginal dryness, headaches, decreased libido, bone density loss

Danazol

- ▶ Chemistry weak synthetic androgen (17 α -isoxazol derivative of ethinyl testosterone)[□]
- ▶ Action
 - Anti-Gn $\Rightarrow$ blocks gonadotrophin secretion & blocks their effect on ovary $\rightarrow$ $\downarrow$ steroidogenesis (pseudomenopause)
 - Anti-E & Anti-P $\Rightarrow$ blocks action of steroids on target tissues $\rightarrow$ anovulation $\rightarrow$ endometrial atrophy $\rightarrow$ amenorrhea
 - Androgenic $\Rightarrow$ $\uparrow$ free testosterone by $\downarrow$ SHBG formation
- ▶ Dose $\rightarrow$ 200 mg twice daily up to 800 mg
- ▶ Indications
 - Endometriosis (main indication[□]) / Endometrial hyperplasia / Fibroid
 - DUB (Metropathia haemorrhagica)
 - Premenstrual tension / Isosexual precocious puberty
- ▶ Disadvantage
 - Expensive $\rightarrow$ progestins have same efficacy + less cost & side effects)
 - Mild androgenic action $\rightarrow$ hirsutism, temporal baldness, deepening of voice
 - Menopausal symptoms $\rightarrow$ hot flushes, decreased libido, dry vagina
 - Metabolic effects $\rightarrow$ liver dysfunction, IGT, hypertension
- ▶ So contraindicated in: Liver diseases, DM, hypertensives, CHF

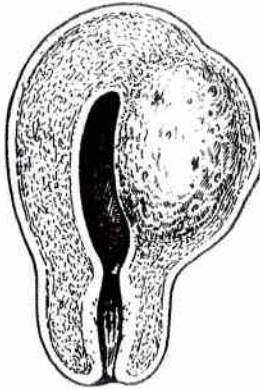
Gestrinone (dimetriose)

- ▶ Chemistry $\Rightarrow$ weak synthetic androgen (19 nor-testosterone derivative)
- ▶ Same like Danazol $\Rightarrow$ Action (anti-P > anti-E) – Indications – Side effects

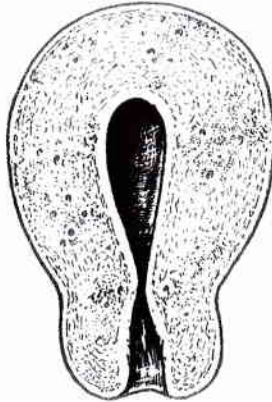
LHRH (GnRH) analogues

- ▶ Mechanism
 - Long acting GnRH $\rightarrow$ down regulation of pituitary receptors $\rightarrow$ no gonadotrophin secretion $\rightarrow$ pseudomenopause (reversible)
- ▶ Indications
 - 1- If given in a CONTINUOUS manner $\rightarrow$ as for Danazol
 - 2- If given in PULSATILE manner $\rightarrow$ induction of ovulation
- ▶ Mode of administration $\rightarrow$ IM, SC, nasal spray
- ▶ Side effects
 - Menopausal symptoms
 - If prolonged $\rightarrow$ osteoporosis ($\therefore$ give E + P = add-back therapy 🐼)

Localised Adenomyoma



Diffuse Adenomyosis



KEY POINTS

1. Adenomyosis is the extension of endometrial tissue into the myometrium, making the uterus symmetrically enlarged and globular.
2. It occurs in 15% of women, most of whom are parous and in their late 30s or early 40s.
3. Fifteen percent of women with adenomyosis also have endometriosis and 50% will also have uterine fibroids.
4. Patients typically present with increasing secondary dysmenorrhea and/or menorrhagia; 30% of patients are asymptomatic.
5. Patients presenting with dyspareunia, dyschezia, and metrorrhagia have an increased probability of having adenomyosis.
6. Minimal symptoms may be treated with analgesics, NSAIDs, OCPs, or progestins.
7. Hysterectomy is the only definitive treatment for adenomyosis.

Adenomyosis

Definition Presence of active endometrial glands within myometrium (usually the basal parts → therefore, it is less responsive to hormonal changes) – as they lack.....receptors –

Types

- 1- **Localized** → uncommon → a small irregular swelling (esp posterior)
- 2- **Diffuse** ✓✓ → . Symmetrically enlarged uterus (<12 weeks)
 . Cut section → brown spots (glands with altered blood)

Etiology * Cullen's diverticular theory
 * Denovo growth within the myometrium (usually multifocal)

Clinical picture

⊕ **Symptoms** (TRIAD → **Bleeding** / **Pain** / **Infertility** only 1/3 in cases)

- 1- **Bleeding** (Menorrhagia⁺) the commonest ✓ →
 . Enlargement of uterine cavity
 . Pelvic congestion
 . Associating endometrial hyperplasia or fibroid
- 2- **Pain**
 - Dysmenorrhea (d.t. disturbed uterine contractions)
 - Dull Lower abdominal pain & heaviness → frequency
- 3- **Infertility**

⊕ **P/V** → enlarged uterus (< 12 wk), tender, mobile, firm

D.D

	Adenomyosis	Fibroid
Age	Younger age	30-40 yrs
Etiology	Deeply penetrated glands	Theories
Size	< 12 weeks, symmetrical	Large knobby uterus
Whorly appearance	Diffuse (no capsule)	Well circumscribed

Investigations

- U/S (difficult), MRI (more accurate)
- Hysteroscopy → wide gland openings may be seen
- The only way for diagnosis → **histopathological** after TAH

Treatment

- 1- **Surgical** → TAH (the main therapy) ✓
- 2- **Medical** → analgesics & antiprostaglandins for dysmenorrhea
- 3- **Hormonal** → non-responders or rapid recurrence after weak response



Chapter 2

Cervix

CIN

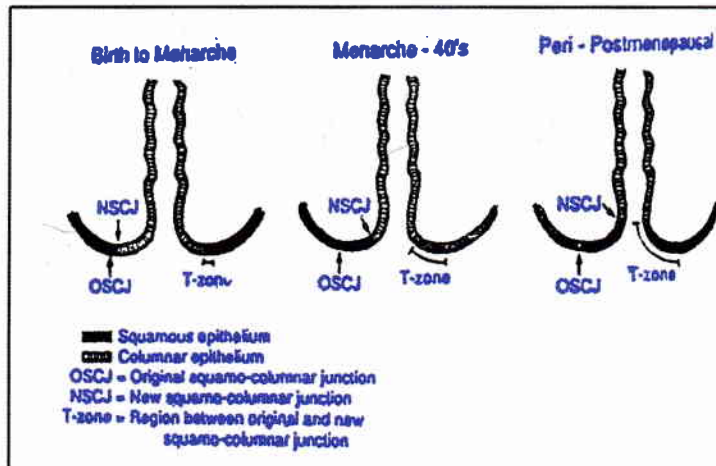
Invasive Cancer CX

Physiology

- Both vagina & ectocervix are covered by.... *st. sq. epith. non Keratinized*
While endocervix is covered by..... *columnar epith*
- The Junction between them $\Leftrightarrow$ Original Squamo-Columnar Junction (OSCJ)
- In the presence of 'E' $\rightarrow$ bacteria flora (lactobacilli) will act on vaginal epith $\rightarrow$ anaerobic metabolism of glycogen $\rightarrow$ $\downarrow$ pH.

This will lead to a *life long continuous metaplasia* of the columnar epithelium into stratified squamous epithelium

- The result is a progressive upward creeping of the SCJ into the endocervical canal (i.e. the SCJ is vaginal in young $\rightarrow$ high endocervical in post-menop.) $\Leftrightarrow$ New Sq. Col. Junction (NSCJ)
- Transformation Zone "TZ" (the zone from OSCJ $\rightarrow$ NSCJ) = 1–3 cm
 $\hookrightarrow$ is the most susceptible area for cancer cervix



Cervical Intraepithelial Neoplasia (CIN)

Definition

Malignant change of cervical epithelium → affecting part or all of its thickness.....*but with no invasion to the basement membrane*

- **Age** → 30 – 40 yrs
- **Class** (low) → early marriage + multiparity[■] → cx trauma at labor !?
- **Race** → ↓ in Moslems & Jewish (genetic factors?, circumcision?)

Etiology Φ

1. Sexual activity, esp If :-

- Occurred at early age (<18)....the SCJ is low
- With multiple partners.....STD's
- Uncircumcised males.....engulfment of abnormal smegma

2. Viral Infections (oncoviruses)

- HPV 16, 18 (while 6, 11:- condyloma accuminata)
- HIV (↓ immunity, associated STD)

3. Smoking[■]

- Release of carcinogenic products in cx mucus
- Lowering of general immune system

Pathology

- * **Sites** . Sq.columnar junction (TZ)....90%.....**multifocal**[■]
 . Endocervix.....10%
- * **Macroscopic** ⇔ nothing apparent
- * **Microscopic**
 - Cellular atypia . ↑ nuclear / cytoplasmic ratio
 - . ↑ nucleoli, multinucleated, thick irregular nuclear memb
 - . ↑ mitotic figures, hyperchromatic
 - Architectural atypia (loss of polarity)

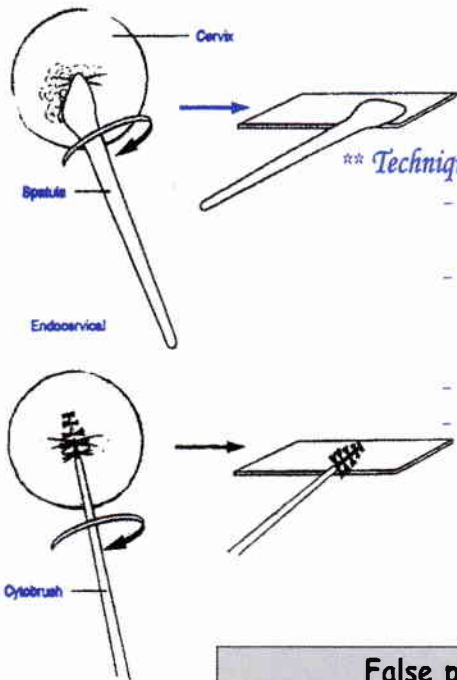
- Fate** CIN may - Regress } a good chance
 - Persist unchanged } for early
 - Progress (5–15 yrs[■]) to invasive cr } discovery & ttt

	Abnormal cells in	Progress to invasive cr
CIN I	Deep 1/3 only	0 – 25 %
CIN II	Deep 2/3	25 – 50 %
CIN III	The whole thickness	75 – 100 %

Clinical picture

Symptoms → asymptomatic (sometimes → contact bleeding)

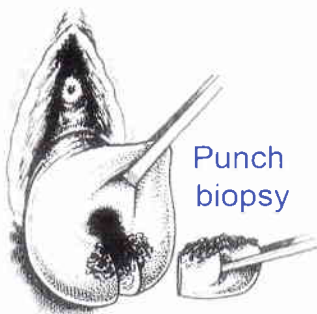
Signs → cervix looks normal (sometimes → cervicitis)



Technique "using Ayre's wooden or Rolon plastic spatula"

- Avoid douching, intercourse, PV for 24 - 48 hours
- Use non-lubricated speculum
- Rotate the spatula 360° at the external os (SCJ)
 - . Use the other side to obtain cells from post. vag. fornix
 - . Use the cytobrush to obtain cells from endocervix
- Spread specimen on glass slide → fix immediately by alcohol 95%
- Stain by Papanicolaou stain (Pap smear)

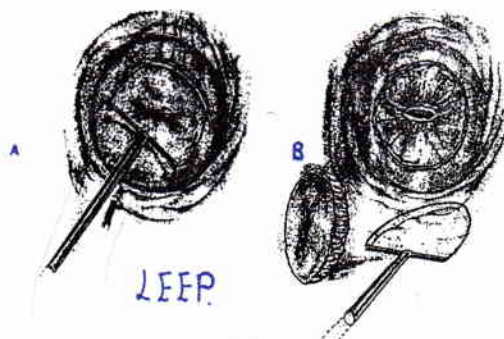
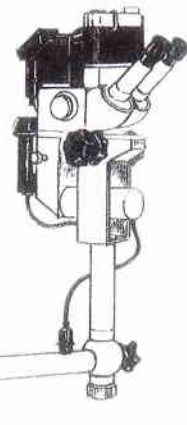
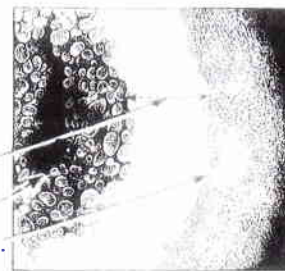
False positive	False negative
Previous infection (chronic) esp HPV	Infections (severe)
Previous surgery on cx (Pizzar cells)	Poor technique or cytologist
Previous irradiation or trauma	High SCJ (not evaluated well)



Punch biopsy

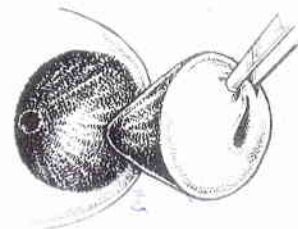
COLPOSCOPY

The transformation zone lies between the cervical canal and the squamo-columnar junction.



LEEP

CONE BIOPSY



Investigations for any suspicious cx ☺ ΦΦ



1) Cervical smear ⇨ cytology: Pap smear

** Timing

Indication	Timing
High risk cases • Early sexual activity, multiple partners • HPV, HIV infection • Smoking	Every year Starting at 18 yr or once SI starts
After.. • Subtotal hysterect. for benign lesions • Local treatment for CIN	Every year
Low risk cases (all others)	Every 3 years

** **Results..... abnormal results m.b. seen in**
Cx (CIN), vagina (VAIN), vulva (VIN), but note...

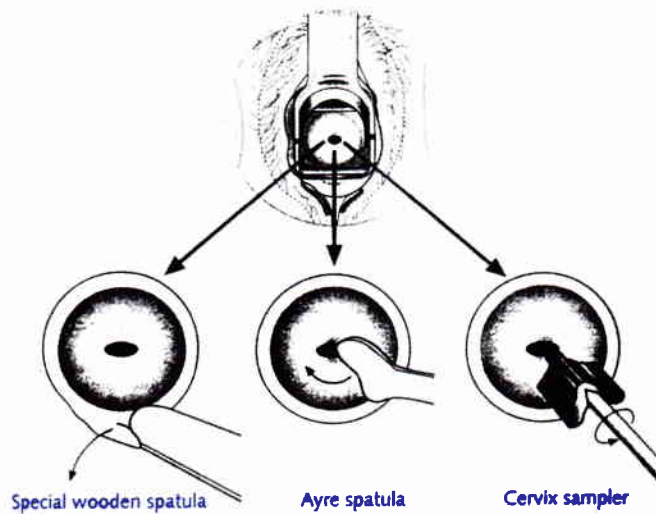
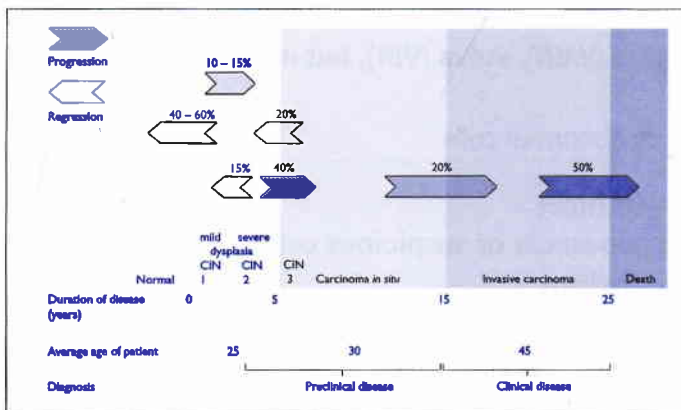
2) Colposcope ⇨ determine site of abnormal cells

- Magnifies the cervix 10 – 40 times
- Done in case of abnormal pap smear or suspicious cervix:
 - A) Shows abnormal **epithelium**
 - B) Shows abnormal **vascular** pattern (punctate or mosaic)
 - C) Paint with **acetic acid** (3%): Abnormal areas → aceto-white
 - D) Paint with **Schiller** or **Lugol's iodine**
 - Normal glycogen containing epithelium stains brown [■]
 - Abnormal areas (erosions or CIN) → yellow (unstained glycogen)
- Criteria of malignancy
 - Raised edge, irregular contour
 - Abnormal blood vessels (mosaic)
 - Aceto-white areas with acetic acid
 - Yellow-areas with Schiller iodine

3) Cervical biopsy ⇨ to confirm **diagnosis** [■] & exclude invasion

- A) **Punch biopsy** → only parts from suspected areas
- B) **Four quadrant cervical biopsy**
- C) **Colposcopic directed biopsy**
- D) **Cone biopsy** ✗ → only if:
 - Improper visualization of whole SCJ (unsatisfactory colposcopy)
 - Suspicion of microinvasion by colposcopy
- E) - **LEEP** → Loop Electrosurgical Excision Procedures ✓ [■]
 - **LLETZ** → Large Loop Excision of the Transformation Zone

Class	Papaincoloau	WHO	CIN	Bethesda
I	Benign (normal)			
II	Atypical changes d.t . Inflammation . HPV			LG – SIL
III	Suspicious	- Mild dysp. - Mod. dysp.	- CIN I - CIN II	LG – SIL HG – SIL
IV	Probably malig.	- Severe dysp	- CIN III	HG – SIL
V	Malignant			



Cervical Pap smear technique.

Treatment

** Bethesda classification

LG.SIL (Low grade-squamous intraepithelial lesion)

↳ corresponds to → CIN I & changes d.t. HPV infection

HG.SIL (High grade-squamous intraepithelial lesion)

↳ corresponds to → CIN II & III

CIN (I) or atypical cellsttt of infection for 6 weeks then ↻

- . If becoming normal → follow up by 'Pap' smear / 6 months
- . If still persistent → colposcopy & directed biopsy

CIN (II & III)

↳ **Local destructive therapy** ⇔ (95 % cure)

Indications

- Young patient, not completed her family
- Expert colposcopist.... lesion is exactly demarcated
 - . lesion not extending in cervical canal
- Strict follow-up by cytology & colposcopy

Destroy epithelium to a depth at least 5 mm by

- 1- *Cautery* (electric, cryocautery, laser)
- 2- *LEEP / LLETZ*.....✓ very popular now (but → infection)
- 3- *Cone biopsy* (cold knife)...✗ complications ↻
 - Hemorrhage (1^{ry} or 2^{ry})
 - Infection → infertility
 - Cervical stenosis → cervical dystocia
 - Cervical incompetence → abortion or PTL

↳ **Hysterectomy** ⇔ lowest recurrence rate <1%

If any of the above criteria are not met with esp. if

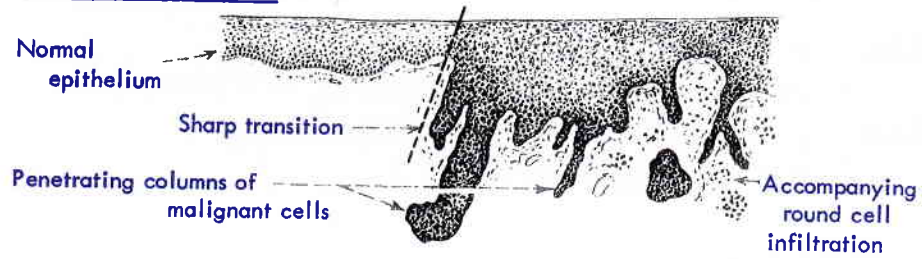
- . Old patients, completed their family
- . Associated pelvic pathology e.g. fibroid

Follow-up

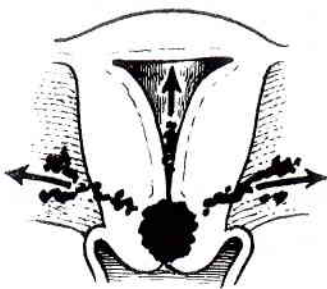
- * Pap smear / 2 months → for 2 year, then
/ 3 months → for 3 year, then / year → for life
- * Colposcopy / 6 months → for 2 year, then / year → for life

HISTOLOGY OF CERVICAL CARCINOMA

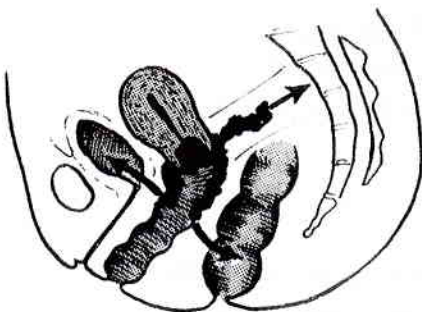
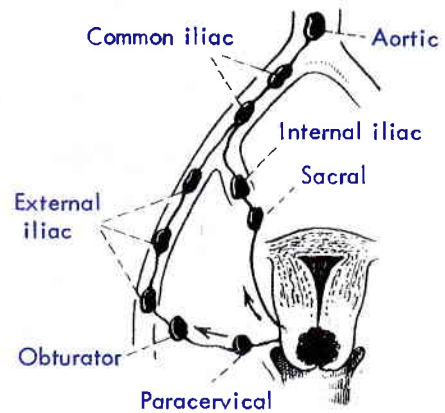
Low Power Examination



Direct spread



Lymphatic spread



Invasive carcinoma of cervix

Incidence

It is the 3rd common ♀ tumor

It is now becoming < cancer body (↓ed from 35 → 15 /100.000)

• Factors leading to relative INCREASE of endometrial carcinoma

- Increased life span → increased exposure to estrogen
- Increased economic status → late marriage
- Increased contraception → ↓ P (pregnancy) + ↓ Prolactin (lactation)
- Increased estrogen therapy → postmenopausal HRT

• Factors leading to relative Decrease of cancer cervix

Routine screening for cancer cervix ∴ CIN is seen more frequently

Etiology ⇨ as in CIN

Pathology

[1] Ectocervical (90%) at SCJ [□]

☆ Macroscopic

- *Cauliflower mass* (✓✓) ⇨ fungating mass + friable necrotic surface
- *Infiltrating mass* (worst) ⇨ fibrosis → stenotic cervix + v. hard base
- *Malignant ulcer* ⇨ raised everted edges + indurated base
- *Nodular mass* ⇨ firm nodule → may ulcerate

☆ Microscopic ⇨ squamous cell carcinoma

[2] Endocervical (10%) [□]

☆ Macroscopic

- Starts as a mass → *nodule*
- Then distends the cervix → *Barrel shaped cervix*

☆ Microscopic ⇨ adenocarcinoma

Spread

1] Direct spread

- *Upwards or down*.....to body of uterus or vagina
- *Laterally* (dangerous).....to parametrium (LN) & may affect **ureter** ✓
- *Ant. or post*.....to bladder or rectum (edema, ulcer, hge, fistula)

2] Lymphatic spread (by embolization & rarely by permeation) [□]

- **1st relay**.....Paracervical + Parametrial + Ureteric.....Presacral
- **2nd relay** ✓✓Internal iliac + Ext. iliac + Obturator → common iliac
- **3rd relay**.....Paraaortic LN's (poor prognosis.....incurable)

3] Blood spread (rare & late) → LBLB

Staging

..clinical

To determine therapy & prognosis

- PV, PR, recto-vaginal examination
- EUA (ANTIBIOTICS MUST BE GIVEN FOR 5 DAYS < EUA)
- X-ray (IVP & Barium enema)
- Cystoscopy & procto-sigmoidoscopy

Stage 0: CIN (carcinoma in situ) L.N. spread

Stage I:

Ia → Microinvasive carcinoma 10%

Ia₁ → minimal microinvasion < 3 mm

Ia₂ → this is a condition in which there is

- Early stromal invasion (depth < 5mm, width < 7mm)
- No confluence of tumor masses

Ib → all other types whether apparent clinically or occult 20%

Ib₁ → lesion < 4 cm (non-bulky)

Ib₂ → lesion > 4 cm (bulky)

Stage II 40%

IIa → infiltration of the upper 2/3 of vagina

IIb → infiltration of the parametrium short of the pelvic wall

Stage III 60%

IIIa → infiltration of the lower 1/3 of vagina

IIIb → infiltration of the parametrium till the pelvic wall

OR there is hydronephrosis or non-functioning kidney

Stage IV 75%

IVa → spread to bladder or rectum

IVb → distal spread: LBLB

Causes of death

1. Uremia → ✓ the commonest (bilateral ureteric obstruction)
2. Complication of ttt (surgery or radiotherapy)
3. Pulmonary embolism (due to pelvic thrombophlebitis)
4. Hemorrhage (erosion of a large blood vessel on the surface)
5. Infection, cachexia

Clinical picture

....Early stages are asymptomatic (discovered accidentally)...

Symptoms ⇨

1. Bleeding

- CONTACT BLEEDING ✓ (must suspect cr cx)
- Postmenopausal bleeding (more common → endometrial cancer)

2. Discharge → serosanguinous or offensive (infected)

3. Pain (lateⁿ)

Somatic → infiltration of nerves (in back & LL)

Visceral → infiltration of organs

- Bladder → dysuria, frequency, fistula, incontinence
- Rectum → dyschezia, bleeding /rectum, fistula, incontinence

4. Cachexia (⇨)....weight loss, anorexia, fever, metastasis (Virchow LN)

Signs

1. General → ⇨ + UREMIA in advanced cases

2. Abdominal

- No pelviabdominal mass (except if → pyometra)
- Metastasis (palpate liver & kidney)

3. Local

- P/V → any of the pathologic forms of *ectocervix* or *endocervix*
- P/R → ✓ for infiltration of:- parametrium / rectum / uterosacral lig.

Investigations

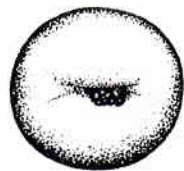
1] Preoperative.....

2] For diagnosis (as in CIN)

- a. Colposcopy.....criteria of malignancy
- b. Cervical biopsy.....most important (during EUA: staging + diagnosis)

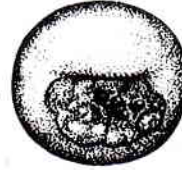
3] For staging....esp:

- a. Cystoscopy.....infiltration (finger like projections)
- b. IVP.....very important for complication & staging

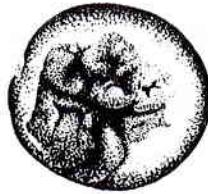


Early

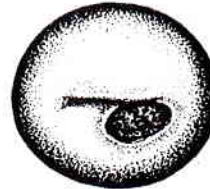
In the early stages malignancy is less obvious, and the cervix may feel and look like a simple erosion.



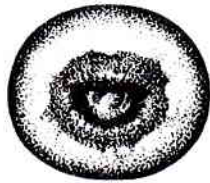
Moderately developed



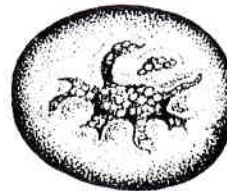
Cervicitis with erosion



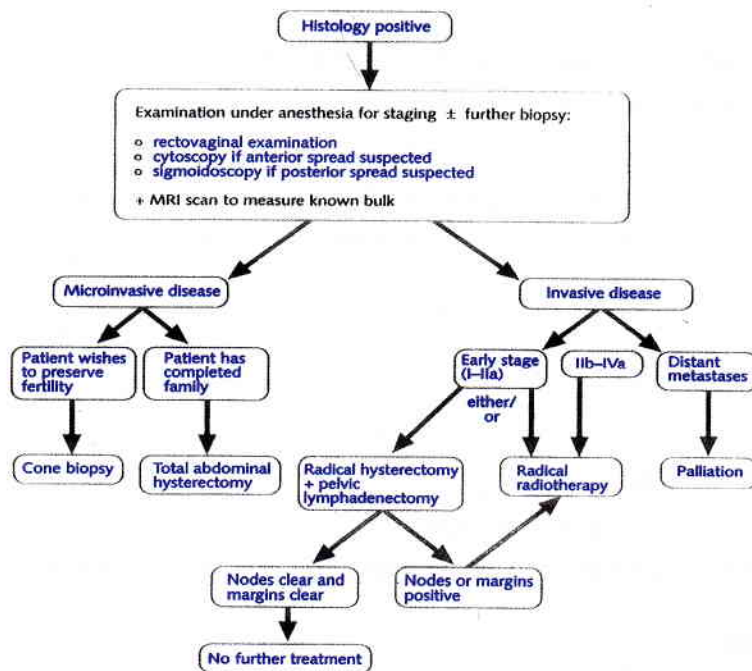
primary chancre



Mucous cervical polyps



Tuberculosis is rare in the cervix.



Management of cervical cancer.

Differential diagnosis: ΦΦΦ**1. Causes of contact bleeding****2. Ulcers of cervix**

- Cervical ectopy → bright red area d.t. columnar epithelium (not a true ulcer)
- Trophic ulcer in prolapse → cr cx may occur with prolapse (chronic irritation)
- ✧ Chancre of cx → round ulcer with punched sharp edges, (+ve tests for S)
- ✧ Bilharzial ulcer → multiple, dirty shallow floor, irregular (+ve tests for B)
- ✧ TB ulcer → single / multiple, undermined edge, yellow floor (+ve tests for TB)
- ✧ Herpetic ulcers → multiple, small, greyish, painful

3. Polyps & masses of cervix

- Adenomatous (mucous polyp) → single or multiple soft swellings
- Fibroid polyp → has a pedicle connecting it with uterus or cx canal
- Sarcoma botryoids → soft, bunch of grape polypi
- ✧ Bilharzial polyp → multiple with necrotic dirty surface
- ✧ TB polyp → multiple, associated infertility
- ✧ Condyloma accuminata → warty lesions also found on vulva, vagina

4. Barrel shaped cervix

- Chronic hypertrophic cervicitis
- Cervical fibroid
- Retained products of conception

Treatment**✧ Summary of treatment ✧**

Best results are obtained by a combined plane put by both
Gynecologist & Radiotherapist

Ia₁ → Simple hysterectomy or conization

Ia₂ → Extended hysterectomy

I_b & II_a → Surgery (Radical TAH) or Irradiation (esp II_a) or both

II_b & III & IV → Irradiation

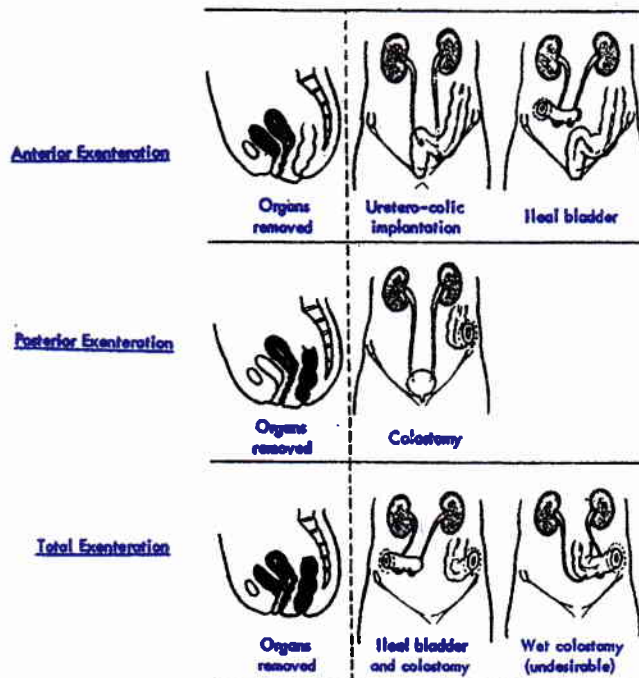
IV_a → Some cases exentration +/- irradiation, others → palliative

IV_b → palliative

↪ Prophylactic

- Routine screening of all females ✓✓✓ → *HPV vaccine*
- Avoid . Early sexual intercourse / Multiple partners
 - . Smoking
 - . Hysterectomy better to be total & not subtotal
- Early & proper ttt of CIN
- Strict follow up by colposcopy & smear for all treated cases

↪ Curative ~~o/s/~~



IV_a + bladder involved : **anterior exenteration** (as radical + bladder removal)

→ ureterocutaneous anastomosis or ileal conduit

IV_a + rectum involved : **posterior exenteration** (as radical + rectal removal)

→ colostomy + Hartman's pouch

IV_a + (both bladder & rectum) → **total pelvic exenteration** + wet colostomy

1) SURGICAL

► Stage Ia₁ ⇔ **Hysterectomy**

- (in few cases with minimal stromal invasion & no kids
→ we may do conization with very strict follow up)

► Stage Ia₂ ⇔ **Extended hysterectomy**: removal of

- Uterus & Cervix
- Medial portions of cardinal ligament
- Pelvic lymph nodes are not removed

► Stage Ib or II_a ⇔ **Radical hysterectomy**: removal of

- Uterus & cervix (oophrectomy is unnecessary[□])
- Whole parametrium (∴ ureters must be dissected[✱])
- Upper 1/3 to 1/2 of vagina
- Pelvic lymph nodes[□]

May be done abdominally (**Wertheime**) or vaginally (**Schuatta**)

► Late stages ⇔ inoperable except for some selected patients with stage IVa with no lateral spread (look figure)

2) RADIOTHERAPY

► **Indications:**

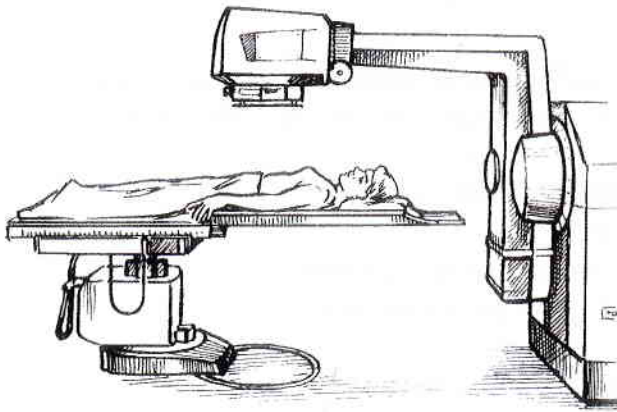
- Therapeutic
 - . May be curative in **I_b** & **II_a**
 - . The only ttt in **II_b**, **III**
- Adjuvant → postoperative (if +ve LN)[□]
- Palliative → in advanced cases (IV)

► **Types of radiation**

- * Brachytherapy alone is not enough (as radiation effect ↓ with distance according to the inverse square law) ∴ ?
- * Teletherapy usually precedes or follows brachytherapy

► **Contraindications**

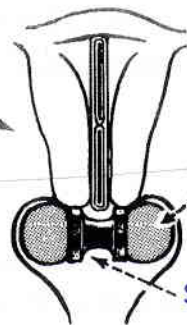
- *Presence of Pelvic*
 - . infection → flaring up
 - . adhesions (around bowel) → more complications
 - . associating *pelvic* lesion e.g. ovarian cyst or fibroid
- Relative in young patient → vaginal stenosis & premature menopause
- Radioresistant tumors as in adenocarcinoma



External Radiation

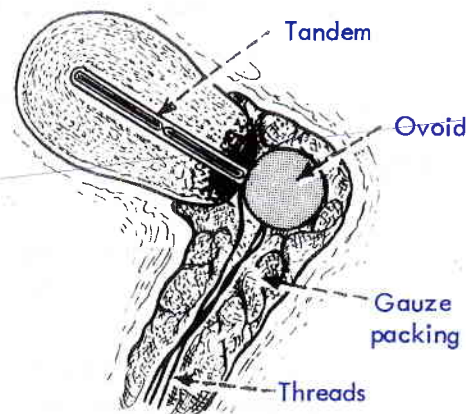
Teletherapy

Brachy - therapy



Ovoid

Spacer



Tandem

Ovoid

Gauze packing

Threads

Surgery	Irradiation
-----Advantages-----	
1. Early & late complications of radiotherapy are avoided 2. Better psychologically 3. Suitable for young patients:- . No vaginal stenosis . Ovaries can be preserved . avoid premature menop.	1. <i>Less mortality</i> (same results but mortality is < 1%) 2. <i>Less morbidity</i> (< urinary & ureteric complications) 3. Suitable for older patients:- . Unfit for surgery . Advanced stages
-----Complications-----	
① Early	
1. Hge & shock 2. Infection (urinary, wound, vaginal vault) → fever 3. Injury ⇔ ureter [□] (direct or indirect → fistula 2%)... bladder...rectum	affection of rapidly dividing cells (<i>skin, hair, mucosa, bone marrow</i>) → self limiting → symptomatic ttt.....while late comp. are d.t. affection of cells with low turn-over (<i>C.T., muscle, bone, nerve</i>) → EAO
② Late	
1. Lymphocyst [□] 2. Hernia & wound dehiscence	1. GIT . Radiation sickness → N & V . Radiation proctitis → diarrhea . Radiation enteritis → int. obst. 2. Urinary . Radiation cystitis . Ureteric fibrosis → fistula 3. Vaginal stenosis / artificial menop. 4. Flaring up infection (↓ bone marrow)

3) COMBINED SURGERY & IRRADIATION

- Preoperative → shrinks tumor size → operable
- Post operative → if +ve lymph nodes

4) PALLIATIVE TREATMENT

- * Palliative **surgery** ⇒ intrathecal anesthetic injection for pain
- * Palliative **irradiation** ⇒ to ↓ tumor bulk or its metastasis
 - Suppression of mitosis } Center of tumor
 - Chromosomal damage } (hypoxic) is < sensitive
 - Endarteritis obliterans } to these effects
- * Palliative **medical** treatment ⇒ analgesics up to morphine

Extras

☆ Prognosis depends on

Stage (5 YSR)		Tumor	Others
I → 90 %	II → 60 %	- LN spread	Patient (G. condition)
III → 30 %	IV → 5 %	- Parametrial infiltration	Treatment received

☆ Recurrent cx cancer

- ▶ **Incidence** ⇒ 35% (most of them within the 1st 2 years) [□]
- ▶ **Recurrence sites** - *Central* → good prognosis
 - *Pelvic side walls* → poor prognosis
 - *Distal* → the worst (paraortic LN, LBLB)

☆ Stump Carcinoma

- ▶ **Def** ⇒ carcinoma of the cx stump after subtotal hysterectomy
- ▶ **Prognosis** ⇒ bad (due to:)
 - Early invasion of bladder & rectum
 - Difficult surgery (distorted anatomy)
 - Difficult radiotherapy (Bladder & Rectum are so near)
- ▶ **Management**
 - Prophylaxis ⇒ do total hysterectomy
 - Active ⇒ surgery or irradiation (better)
 - If after surgery → irradiation
 - If after irradiation → surgery

☆ Cancer cx in pregnancy

- ▶ **Diagnosis**
 - **C/O** → bleeding with pregnancy [□]
 - **Inv** → the same as in non-pregnant
 - But take care: cone biopsy → hge., abortion [□]
- ▶ **CIN** → continue pregnancy [□] (preg. doesn't ↑ CIN)
- ▶ **Invasive cancer**
 - 1st trimester** → Radical hysterectomy in toto or *Irradiation* (usually followed by spontaneous abortion)
 - 2nd trimester** → Radical hysterectomy in toto or Hysterotomy followed by *irradiation* after 2 weeks
 - 3rd trimester** → wait for maturity → Cesarean Wertheim operation or CS followed by *irradiation* after 2 weeks



Chapter 3

Ovary

Classification

Complications

Treatment

《 Ovarian tumors 》



Classification

Neoplastic				Non-neoplastic = (functional)
1 st			2 nd	
Benign	Border-line	Malignant	- Typical - Atypical	
	Potentially Malignant	Carcinoma Sarcoma		

Incidence

- ⊕ The 2nd common ♀ tumor (25%)
- ⊕ Responsible for 50% of death from genital malignancy

Mean age
'60 yrs'

Distribution acc to age	Incidence / 100.000	Nature
60% → 40–60 yrs	40 yrs → 15	80% → benign
20% → < 40 yrs	60 yrs → 35	10-20% → malignant
20% → > 60 yrs	80 yrs → 55	10-20% → secondary

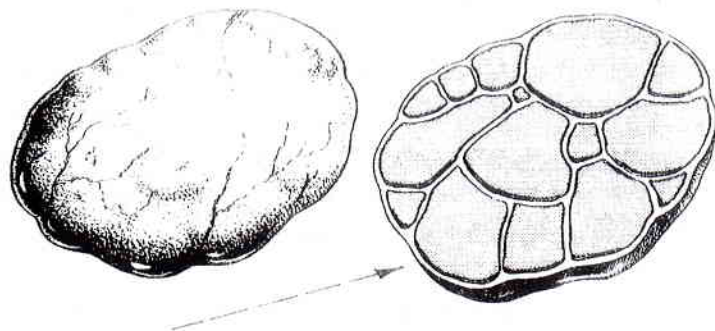
Predisposing factors

- **Aging** ✓✓
 - Familial → +ve family history in only 5% (esp if 1st degree)
 - Genetic → association with
 1. Ovarian + breast cancer..... BRCA I or II (chromosome 17 or 13) [□]
 2. Ovarian + colon cancer.....Lynch type II [□]
- **Repeated ovulation trauma**
 - Nulliparity, late marriage (high social class)
 - Drugs for induction of ovulation (COC is protective [□])
- **Exposure to** asbestos or talk powder or Mumps

Origin of tumors [□]

1. **Epithelial tumors** (ectoderm)
 - Arise from the coelomic (germinal) epithelium of the ovary
 - It has same embryonic origin as epithelium lining Mullerian ducts
 - Thus it is capable to produce tumors similar to
 - * Tube (SEROUS) * Uterus (ENDOMETROID)
 - * Cervix (MUCOID) * Urinary tract (MESONEPHROID & BRENNER)
2. **Germ cell tumors** (endoderm)
 - Arise from the ovum
 - Results in various embryonic products as if fertilization has occurred
3. **Sex cord & stromal tumors** (mesoderm)
 - Sex cords → granulosa.....(♀).....or.....sertoli (♂)
 - Sex stroma → theca & fibroblasts....(♀)....or.....Leydig (♂)

SEROUS CYSTADENOMA



MUCINOUS CYSTADENOMA

- 'WHO' detailed classification 'based upon origin'



① Common epithelial tumors (70 – 80%) ✓

- ▶ **Serous tumors** ✓ } Benign or, } each one
- ▶ **Mucinous tumors** } Border line or, } may
- ▶ **Endometrioid tumors** } Malignant. } be...

* Papillary cystadenoma.....Surface papilloma

* Adenoma.....Cystadenoma

* Cystadenofibroma.....Adenofibroma

- ▶ **Mesonephroid tumors** (Clear cell tumors) mostly Malignant
- ▶ **Brenner tumors** mostly Benignⁿ → .found in wall of mucinous cystadenoma
.irritates ovarian stroma → secretes 'E'

The more malignant the more

■ Mac

- . Solid
- . Bilateral
- . Papillae

■ Mic

- . Stratification (> 3 layers)
- . Atypia (mitotic figures, loss of polarity)
- . Stromal invasion

NB:-

* Serous tumor are usually ⇔ small, unilocular

* Mucinous tumor are usually ⇔ large, multilocular

* Endometrioid tumor

↳ chocolate cyst (unilateral, posterior & adherent)**DD: EØ**

* Pseudomyxoma Peritonei (myxoma peritonei)

↳ Due to rupture of mucinous tumor (esp in BLM) → mucus secreting cells implant on peritoneal surface → mucinous ascites results → cachexia & intestinal adhesions → obstruction (may be fatal)

↳ DD → ruptured mucocele of appendix or gall bladder

↳ TTT → immediate laparotomy + chemotherapy

Notes

② Sex cord-stromal tumors (10%)

► Granulosa-Stroma cell tumors

- 1- Granulosa cell tumors } Have a varying malignant potential
- 2- Granulosa theca } unilateral / small / solid / yellowish

C/P for both [⚡] (↑ Estrogen).....v. rarely → virilization

- Prepubertal → PP
- CBP → amenorrhea, oligomenorrhea, menstrual disturbances
- Postmenopausal → PMB, endomet. hyperplasia, end. cr

- 3- Pure thecoma } benign
- 4- Fibroma [⚡] } benign

- ⊕ Fibroma may be associated with Meig's syndrome = fibroma +
 - Ascites → irritation of peritoneum or surface exudation from tumor
 - Hydrothorax → usually on right side (transfer through lymphatics)
- ⊕ DD is called pseudo-Meig's syndrome (ascites, hydrothorax +
 - Other ov. Solid tumors → Brenner or thecoma
 - Multiple pedunculated subserous fibroids
 - OHSS (Ovarian Hyper Stimulation Syndrome)

► Sertoli-Leydig cell tumors (Androblastomas)

- 1- Well differentiated.....Sertoli ± lipid storage.....Leydig.....Sertoli-Leydig
- 2- Intermediate differentiated
- 3- Poorly differentiated

CP (of ↑ androgen).....sometimes estrogenic

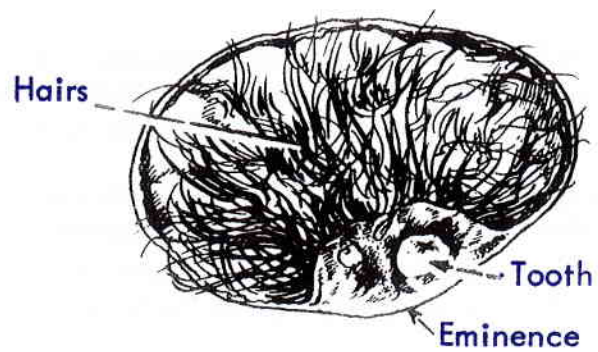
- Defeminization → amenor, br atrophy, changed body contour
- Masculinization → hirsutism, clitromegaly, deep voice, ↑ musc

► Gynandroblastoma (A+B)

NB: Gonadoblastoma

- ↳ Combination of ① germ cell & ② sex cord / stroma
- ↳ Malignant in 50% of cases
- ↳ Usually in dysgenetic gonads (Y-cell line)

Cystic teratoma or dermoid



③ Germ cell tumors (5 – 10%)

► Undifferentiated ⇨ Dysgerminoma [□]

- * The commonest *malignant* germ cell tumor → spread by lymphatics [□]
- * More in young females → esp if dysgenetic gonad
- * Undifferentiated → malignant (solid, rapid growth, unilateral)
- * May lead to PP → due to HCG secretion

► Poorly differentiated ⇨ Embryoma / Polyembroma / Embryonal carcinoma

► Differentiated ⇨

① - Embryonic.....Teratoma

- * Immature (malignant)
- * Mature → solid or *cystic* (may be *benign* ± malignant transformation)
- * Monodermal & highly specialized
 - Struma ovarii.....thyroxin
 - Carcinoid.....5-HT

Dermoid [□] cyst [□]

- ↳ 20% of all ovarian neoplasms
 - ...Commonest *germ* cell tumor (esp in YOUNG / PREGNANT)
- ↳ Benign, unilateral (mature cystic teratoma)
 - ...rarely turn *malignant* (1.5% [□])
- ↳ Has a long pedicle (lies in UV or Douglas pouch)
 - ...liable to all *complications*

Mac: → usually contains greasy or sebaceous material
 ± Hair, teeth, bones, cartilage
Rokitansky tubercle (a protuberance on inner surface representing the center of activity)

Mic:

- Ectodermal → hair, skin, sebaceous glands, nervous tissues
- Mesodermal → muscle, bone, cartilage, teeth (appear on X-ray)
- Endodermal → intestinal & thyroid epithelium

② - Extraembryonic

- * Choriocarcinoma → secretes HCG
- * Endodermal sinus tumor → *very rare very aggressive* [□] malignant tumor of childhood (unilateral)

NB: Tumor markers secreted
 by germ cell tumors ^{□ □}

	β-HCG	α-FP
Embryoma	+	+
Chorio-cr, dysgerminoma	+	-
Endodermal sinus tumor	-	+

Management of a Cystic Adnexal Mass

Age	Size of Cyst (cm)	Management
Premenarchal	>2	Exploratory laparotomy
Reproductive	<6	Observe for 6 to 8 weeks then repeat ultrasound
	6–8	Observe if unilocular; explore if multilocular or solid on ultrasound
	>8	Exploratory laparoscopy/laparotomy for ovarian cystectomy
Postmenopausal	Palpable	Exploratory laparoscopy/laparotomy for ovarian oophorectomy

KEY POINTS

1. Functional cysts result from normal physiologic functioning of the ovaries.
2. Follicular cysts result from unruptured follicles. These are usually asymptomatic unless torsion occurs. Management includes observation for 6 to 8 weeks with or without oral contraceptives, followed by pelvic ultrasound.
3. Corpus luteum cysts result from an enlarged and/or hemorrhagic corpus luteum. These may cause a missed period or dull lower quadrant pain. Corpus luteum cysts should resolve spontaneously or may be suppressed with oral contraceptives if recurrent.
4. Any palpable ovary or adnexal mass in a premenarchal or postmenopausal patient is suggestive of ovarian neoplasm and should be investigated with exploratory laparoscopy or laparotomy.

⌘ Non-Neoplastic tumors & cysts ⌘

[1] Functional (retention) cysts

- Small in size (< 6 cm)
- Regress spontaneously
- Need only follow up for 3 m (may give COC)

	Follicular cyst	Corpus luteum cyst
Etiology	persistent follicle	persistent CL
Association	Hyperestrogenic states e.g. metropathia hgica	May occur with or without pregnancy
Mac.	Multiple, bilateral	Single, unilateral
Lined by	Granulosa cells	Granulosa lutein cells
Complicatn	Rare (rarely reach 10 cm)	If hge or rupture occurs → acute abdomen (DD: disturbed ectopic)

[2] PCO → SOHA

[3] Endometriosis → chocolate cyst (microscopic – 10 cm)

[4] Inflammatory → abscess, tubo-ovarian abscess

[5] Paraovarian cysts

- Due to → cystic dilatation of the remnants of the Wolffian system
- Found → within leaflets of the broad ligament
- Comp. → pressure effect (tube if pelvic, GIT if larger), never turn malign
- TTT → . Simple excision of the cyst
 . U/S guided aspiration

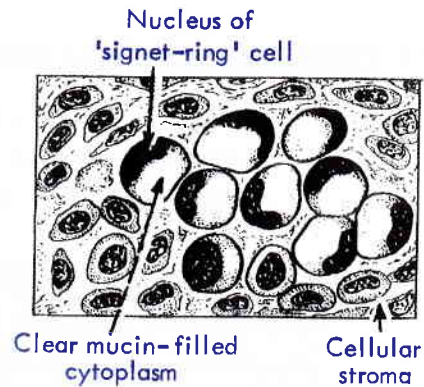
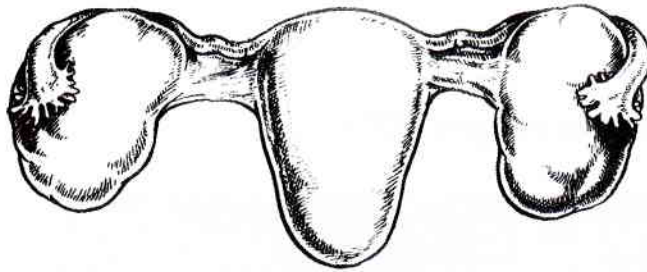
[6] Theca lutein cysts

- Bilateral, multiple, large (15 cm)
- Due to → excessive stimulation of ovarian tissue by Gn as in
 VM, RH isoimmunization, Twins, DM
 Choriocarcinoma, excessive ovulation induction

[7] Pregnancy luteoma [⌘]

- Due to → excessive luteinization of theca cells (↑cholesterol deposition)
- Comp. → androgen production → virilization of mother (reversible)
- TTT → it undergoes spontaneous regression

KRUKENBERG TUMOUR



History

A Krukenberg tumor refers to a secondary ovarian malignancy whose primary site arises in the gastrointestinal tract. It was named by Friedrich Ernst Krukenberg (1871–1946), a German physician, who first described them as 'fibrosarcoma ovarii mucocellulare carcinomatodes'.

History

Meigs' syndrome is the triad of ascites, pleural effusion and benign ovarian tumor, named after Joe Vincent Meigs (1892–1963), an American obstetrician and gynaecologist. For reasons unknown, the pleural effusion is classically on the right side.

History

Fritz Brenner (1877–1969), a German-born physician who later emigrated to South Africa, first characterized the tumour in 1907; the term Brenner tumour was first used by Robert Meyer, in 1932.

History

Enrico Sertoli (1842–1910) was an Italian physiologist who discovered Sertoli cells in 1865 while studying medicine at the University of Pavia, Italy.

History

Leydig cells are found adjacent to the seminiferous tubules and were named by Franz von Leydig (1821–1908), a German zoologist and comparative anatomist.

⌘ Secondaries of the ovary 20% ⌘

- May be from

- Genital tract → Cervix, Endomet., vagina, vulva, the other ovary
- Extragenital → GIT, breast, thyroid

- May be:

- Typical → similar to original tumor
- Atypical → Krukenberg tumor

. **Mac** → Solid, moderate size, lobular, bilateral, freely mobile
 . **Mic** → Signet ring cells in fibrous or myxomatous stroma
 (Mucin secreting tumors → displace nucleus to one side)
 . The 1st is usually.....stomach (75% ^{sq}), colon, gall bladder, breast, cx
 . The 1st tumor m.b....silent & asymptomatic

Spread of ovarian cancer

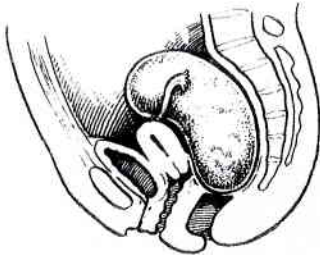
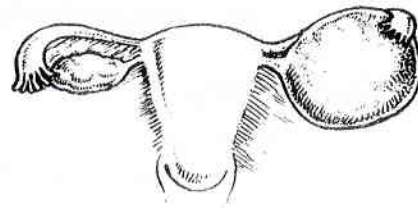
- **Direct** = implantation (via peritoneal cavity) → commonest ^{sq} & early to
 - Uterus, tubes, other ovary
 - Peritoneal deposits
 - Omentum, liver, undersurface of diaphragm
- **Lymphatic** → pelvic → para-aortic → Virchow (the *signal* LN)
- **Blood** → late ^{sq} (BLBL)

Stages of ovarian cancer

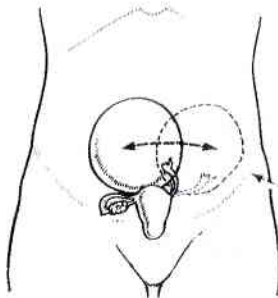
(FIGO, 1986).....Surgical ^{sq}

Ovarian 1	A	One ovary
	B	Both ovaries
	C	1 or 2 ovaries ^{sq} +ve
Pelvic 2	A	Tubes +/- uterus
	B	Other pelvic organs
	C	Pelvic spread ^{sq} +ve
Abdom. 3	A	Microscopic metastasis, no LN involvement
	B	Implants < 2 cm, no LN involvement
	C	Implants > 2 cm and/or LN involvement
Distal 4		Including liver parenchyma or +ve cytology for malignant cells in pleural fluid

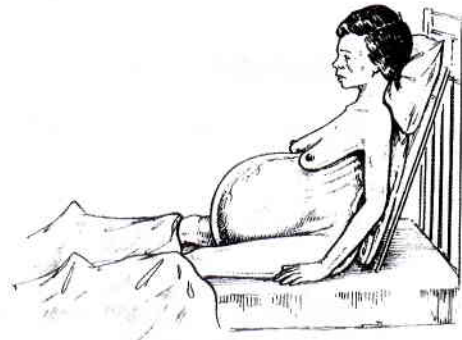
Small tumours remain in the pelvis and will only be detected on bimanual examination.



Larger tumours fill the pelvis and usually lie between the uterus and sacrum.



Some tumours of moderate size have a long pedicle composed of the attenuated broad ligament and fallopian tube, which allows the tumour to be displaced from side to side, or to occupy a high abdominal position.



Differential diagnoses for ovarian tumors

Symptom	Differential diagnosis
Pain	Ectopic pregnancy
	Spontaneous miscarriage
	PID
	Appendicitis
	Diverticulitis
Abdominal swelling	Pregnancy
	Fibroid uterus
	Full bladder
Pressure effects	Constipation
	Urine frequency
	Vaginal prolapse
Hormonal effects	Menstrual irregularity
	Postmenopausal bleeding
	Precocious puberty

Differential diagnoses for ovarian tumors.

Clinical picture

① Symptoms

- ▼ Most cases are asymptomatic & discovered accidentally
- ▼ If symptomatic, they are vague, non-specific → late discovery in 50% ^{ix}
- **General** → cachexia, fever, metastasis
- **Abdominal** ✓✓
 - Dyspepsia, Discomfort, Distension
 - Severe pain if complicated
- **Local**
 - *Bleeding* if → pelvic congestion or 2ries to uterus
 - *Amenorrhea* if → bilateral destructive or cachexia
 - Discharge → leucorrhea or purulent

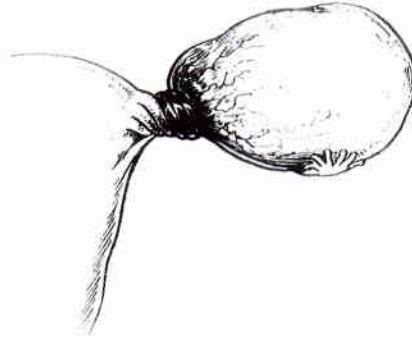
② Signs

- **General**
 - Cachexia, fever, LL edema, Wirchow LN, Secondaries
 - Pleural effusion → (Meig syndrome)
 - Hormone effects → (E, T, thyroxin, serotonin)
- **Abdominal**
 - Pelviabdominal mass
 - . Mobile or fixed
 - . Cystic or solid
 - . Unilateral or bilateral
 - . Tender (complicated) or not
 - Ascites, omental cake
 - Liver metastasis / Renal mass
 - Umbilical nodule (Sister Mary Josef nodule)
- **Local**
 - Adnexal mass (movement of cx is not transmitted to the tumor)
 - Mass in Douglas pouch
 - Mass in uterovesical pouch (esp. dermoid cyst)
 - Secondaries in vulva or vagina

Differential diagnosis

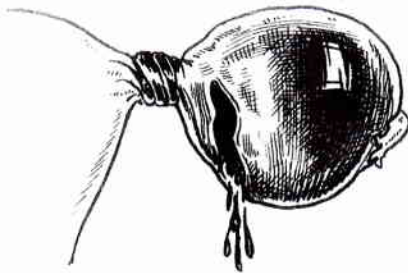
- Pelviabdominal mass...(6_F), adnexal mass, mass or nodules in D.pouch
- Abnormal genital bleeding
- Ascites / Dyspepsia

TORSION OF THE PEDICLE

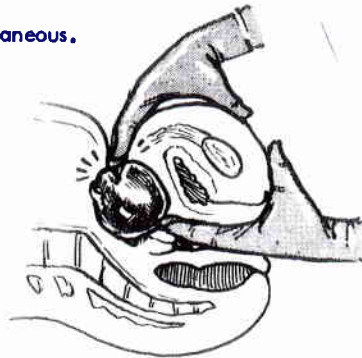


RUPTURE OF OVARIAN CYST

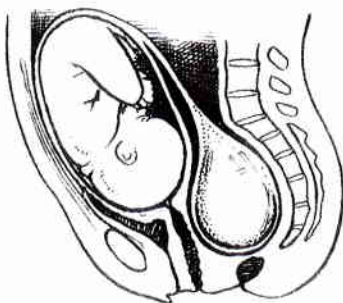
Rupture may be either traumatic or spontaneous.



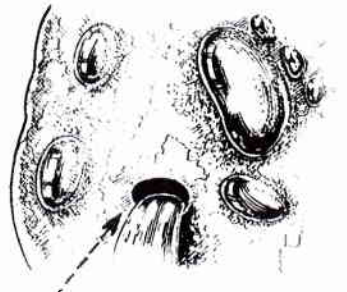
1. Following torsion of a pedicle.



2. During bimanual examination.



3. During labour when the cyst is impacted in the pelvis.



4. Spontaneous rupture. This is not uncommon, especially with malignant cysts, when the epithelial tissue outgrows the connective tissue.

Complications of ovarian cysts & tumors

ΦΦ

ΦΦ



1. Torsion (the commonest) ✓✓

Def ⇔ It is twist or *axial rotation* of a pedunculated tumor

Predisposing factors

- Moderate sized tumors / Long pedicle / Mobile → no adhesions
- Pregnancy → upward displacement of the tumor (esp 2nd trim.)
- Puerperium → the *commonest* pdf

Precipitating factors

- Sudden movement of the patient
- External abdominal trauma or PV

Types

- *Acute torsion* → hge, necrosis or gangrene of a tumor
- *Chronic torsion* → adhere to a surrounding organ → parasitic tumor

Clinical picture

- Sudden severe abdominal pain + shock + vomiting
- Signs → fever / Abdomen: T, R, RT

TTT: laparotomy → adnexectomy (avoid untwisting of the pedicle ?)

2. Hemorrhage

Etiology → . trauma or torsion

. may occur spontaneously in malign. (erosion of vessels)

C/P → - Rapid ↑ in size + the tumor becomes tender

- Shock + acute abdomen + vomiting

TTT → resuscitation + laparotomy

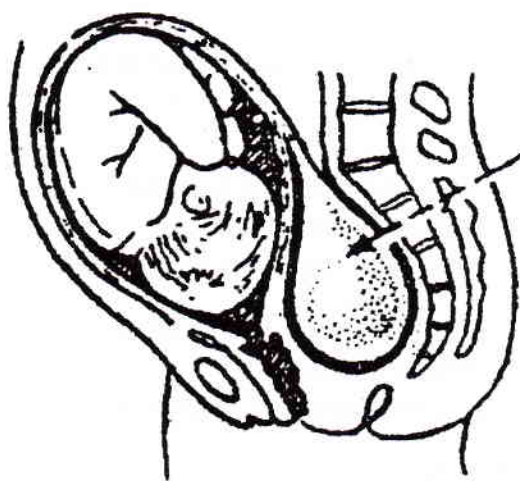
3. Rupture

Etiology → may occur after hemorrhage, torsion or trauma

Effects

- . SEROUS CYST.....no effect
- . PAPILLARY CYST.....dissemination of papillae + ascites
- . MUCINOUS CYST.....myxoma peritonei
- . DERMOID CYST.....chemical (aseptic) peritonitis
- . HAEMORRHAGIC CYST.....intraperitoneal hemorrhage
- . INFECTED CYST.....septic peritonitis
- . MALIGNANT CYST.....dissemination of malignancy

TTT → immediate laparotomy



Incarcerated
'cyst' which
will obstruct
labour

4. Infection

Etiology → - Nearby organ → appendix
 - Ascending → puerperal or postabortive
 - Blood borne → rarely

C/P → Picture of ovarian abscess (if ruptures → peritonitis)

TTT → laparotomy → drainage + antibiotics

5. Incarceration

Etiology → adhesions → entrapment within the pelvis

C/P → pressure effects →bladder, rectum, vessels....

TTT → laparotomy, adhesiolysis & disimpaction

6. Malignancy

- . There are certain criteria of malignant suspicion
- . Histopathology is definitive ✓✓

7. Pressure effects.... bladder, rectum, stomach, pelvic veins

8. Reproductive effects

* *Incidence* → 1/1500 (DERMOID CYST is the commonest: 25%) [□]

* *Effect*

- ➡ On pregnancy
 - 1st trimester → abortion, ectopic
 - 2nd trimester → PTL, pressure effects
 - 3rd trimester → malpresentation, non-engagement, obst. labor
- ➡ On tumor
 - ↑ all the complications (esp in 2nd trimester & puerperium)

* *Management*

- ➡ During pregnancy
 - . If < 6-8 cm → mostly functional: CL cyst → disappear at 14wk [□]
 - . If > 6-8 cm or solid → laparotomy (fear of malignancy):
 - 2nd trimester & 1st week puerperal → best time [□]
 - 1st trimester → abortion (CL?)/ 3rd trimester → difficult
 -If suspect malignancy or complicated at any time → immediate surgery.....
- ➡ During labor
 - . If not obstructing → VD is allowed then laparotomy within a wk
 - . If obstructing → CS & surgery for the tumor

Investigations

1) Tumor Markers

Antigens → CA-125, CEA, CA19-19, OCA (epithelial tumors, esp serous ^{□□})

Enzymes → ALK-P, LDH, transferases (dysgerminoma)

Hormones → . β -HCG & α -Fetoprotein (some germ CT)
 . Estrogen & Androgens (functioning tumors)
 . Thyroxine & 5-HT (monodermal germ CT)

2) Radiological

- U/S, CT, MRI → for tumor, solidity, extent
- Plain X-ray → . teeth in dermoid cyst
 . calcification (*psammoma bodies*) in epith. tumors
- IVP → determine course of ureters / hydronephrosis
- Barium studies → meal, swallow, enema (ESP. IF SUSPECTED KRUKENBERG)
- Mammography → associating hereditary link with breast cancer

3) Endoscopy

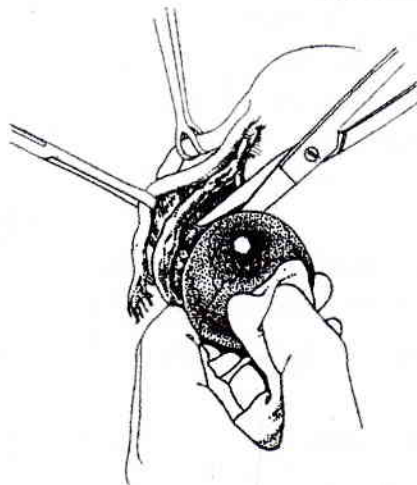
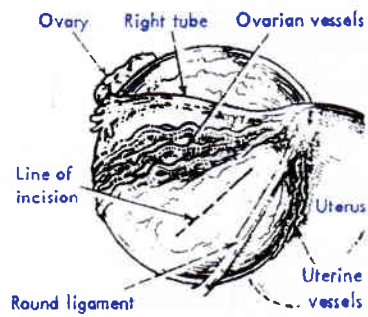
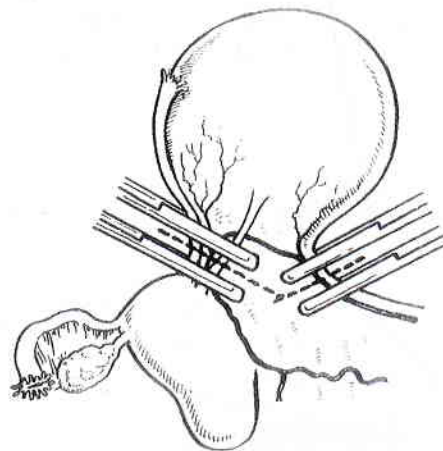
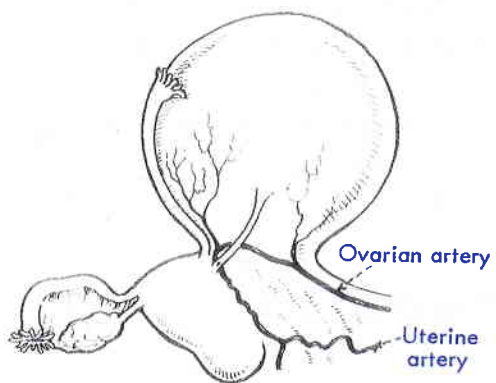
- Staging → cytology / procto-sigmoidoscopy / laparoscopy
- Follow up → laparoscopy after few months (2nd look laparoscopy)
 - ↳ Proved to be unimportant [¤] for prognosis
 - ↳ CA₁₂₅ every 3 m (more accurate to detect recurrence [¤])

4) Laboratory CBC, ESR, liver & renal function test

☪☪☪ Data suggesting malignancy 💣

<u>1. Symptoms</u> - Old age or children - Cachexia & Anorexia - Postmenopausal bleeding - Rapid growth	<u>3. Investigations</u> - ESR increased - Tumor markers +ve - Biopsy is definitive: Laparoscopy / Laparotomy
<u>2. Signs</u> - Tumor . Bilateral, fixed, tender . Metastasis, enlarged LN - Nodules in Douglas Pouch - Ascites, edema of LL	<u>4. Intra-operative</u> . Bilateral, fixed, solid . Metastasis, enlarged LNs - Nodules in DP, omentum, perit. . Papillae on outer surface [□] . Areas of hge & necrosis [□] . Large blood vessels on surface [□]

Ovariectomy



Removing the ovarian cyst intact.

Treatment



Prophylaxis



- There is no efficient screening program, although we may do:
 - Periodic bimanual examination
 - Tumor markers (CA₁₂₅)
 - TVUS ± color Doppler ✓
- Removal of ovarian swellings in
 - Any ovarian swelling > 6 cm or persistent
 - Prophylactic oophorectomy with hysterectomy if > 45 years ☞
- COC in high risk groups



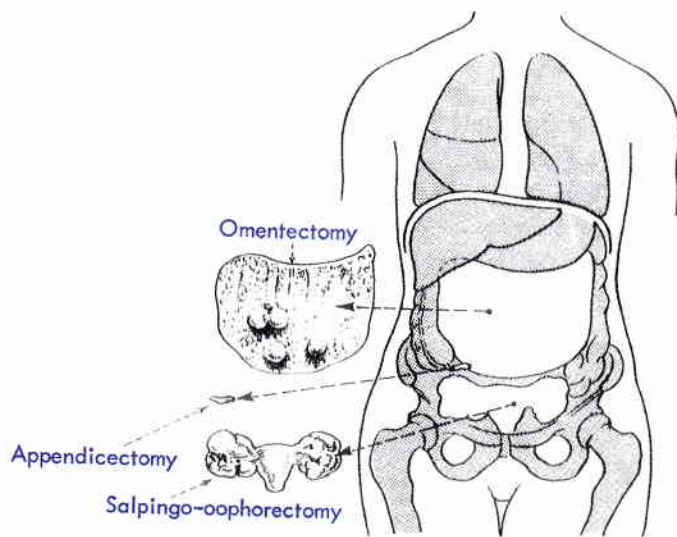
Benign tumors



- * **Ovarian cystectomy** → e.g. dermoid cyst
 - . Enucleation of cyst leaving the remaining healthy ovarian tissue
 - . As in → young patient, uncomplicated, well demarcated cyst
- * **Ovariectomy (Ovariectomy)**
 - . Removal of the ovary by 3 clamps
 - . As in → young patient, complicated, or if the ovarian tissue is destroyed
- * **TAH + BSO** (best)
 - . In old patient > 45 yrs & completed her family

NB ▼

- **Before removal of one ovary** → inspect the other ovary (healthy or not)
- **All tissues** should be sent for **histopathology**
- **Oophorectomy** is removal of **healthy** ovary
- **Tapping** (evacuation of cyst guided by U/S) → carries the risk of dissemination of cyst contents (malignancy or infection)



Ovarian tumors according to site

1. Uterovesical pouch → Dermoid
2. Douglas pouch → Endometriomas

Functioning ovarian tumors

1. Sex cord / stroma → Feminizing or Virilizing or Gynandroblastoma
2. Germ CT → struma ovarii & carcinoid ± dysgerminoma ± choriocarcinoma
3. Epithelial → Brenner (E. secretion d.t. irritation of stroma)

Solid ovarian tumors

1. Benign → Brenner, pure thecoma, Fibroma, Benign solid teratoma
2. Malignant → carcinoma, Dysgerminoma, Malig. solid teratoma, Krukenburg
3. Functioning → G-T, S-L

Ovarian tumors according to age

1. Before 10 years (5% of ovarian tumors) → 50% are malignant
2. Childhood → malignant germ cell tumors
3. Childbearing period → Functional swellings & dermoid cysts
4. Postmenopausal → Epithelial tumors

Malignant tumors

① Surgical.....Exploratory laparotomy ✓ (for almost all patients)

↳ Stage I ⇔ TAH & BSO + LN + omentectomy + appendicectomy

Conservative surgery → unilateral oophrectomy can be done if

- Young patients
- Intact capsule (stage Ia⁺)
- Wedge biopsy of the other ovary → no malignancy
- Strict follow up

This is most commonly met with germ cell or sex cord tumors

↳ Stage II, III, IV ⇔ **debulking** (optimum cytoreduction: residuals <1cm)

↳ Palliative surgery ⇔ in advanced cases (e.g. for intestinal obst.)

② Postoperative Chemotherapy⁺ combination of:-

- Cyclophosphamide, Adriamycin, cis-Platinum ✓⁺ ✓ (CAP)
 - Carboplatinum has less toxicity (can substitute cis-form)
 - Adriamycin didn't improve prognosis much (CP is better)
 - 2nd line chemotherapy → *paclitaxol* (taxol), *topotecan*, *gemcitabine*
- For germ cell tumors → Bleomycin, Etoposide, cis-Platinum (BEP)

③ Radiotherapy XX

- Replaced by chemotherapy (even for dysgerminoma⁺ → v. radiosensitive)
- The whole abdomen is exposed by the moving strip method (2.5 cm daily)

Prognosis

.....Very bad (5-YSR = 10-20%) d.t.

- Late symptoms / Late diagnosis
- Rapid growth
- Rapid spread by peritoneum & lymphatics

I	75%
II	60%
III	30%
IV	15%

.....Cause of death → intestinal obstruction, internal hge, metastasis

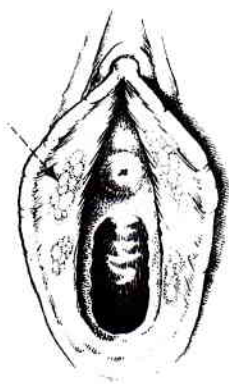
Chapter 4

Vulva

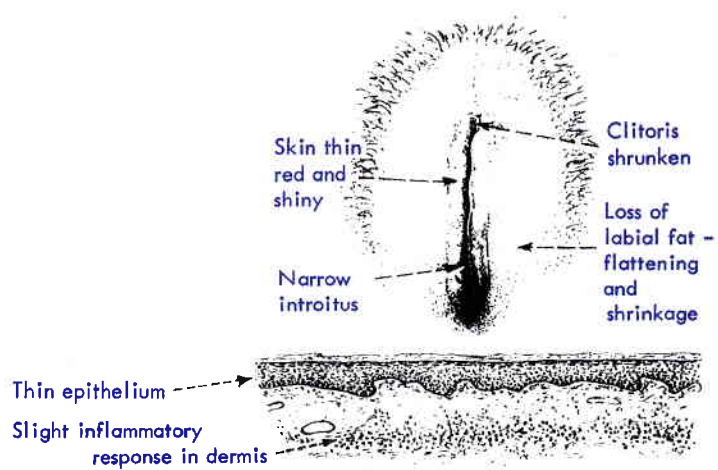
Vulval dysplasty
VJN

Invasive Vulval Cancer
Vaginal Cancer

LEUKOPLAKIA



KRAUROSIS



Vulvar diseases

Classification of vulvar diseases (ISSVD, 1989)

► Non-neoplastic epithelial disorder

- 1- Hypertrophic...(Leukoplakia)..Squamous cell hyperplasia
- 2- Atrophic.....(lichen sclerosus)
- 3- Other dermatosis e.g. psoriasis, lichen planus [■]

► Vulvar intraepithelial neoplasia

- 1- Squamous
- 2- Non-squamous ⇨ Paget disease / Melanoma (5%) [■]

► Invasive vulvar tumors

► Mixed Non-neoplastic & neoplastic epithelial disorders



Vulvar Dystrophy



Definition ⇨ disorders of epithelial growth (dystrophy = poor nutrition)

Etiology

- **C**hronic irritation esp candida
- **A**utoimmune or metabolic disturbance ⇨ DM, achlorohydrria
- **L**ocal factors (**C**halones) ⇨ ↑ed action ⇨ epithelial atrophy
- **N**utritional deficiency ⇨ Fe, folic acid, B-complex
- **E**nvironmental & familial

Pathology 3 types (Mixed forms may be present)

	Sq. (Hypertrophic, Leukoplakia)	Atrophic (Lichen sclerosus)
Mac.	well defined, raised patches	thin, dry, smooth (cellophane paper)
Sites	. vulva, perineum, perianal area . skin of inner sides of thigh	. atrophy of L.minora, clitoris . shrinkage of vag. (Kraurosis vulva)
Mic.	- Hyperkeratosis - Thick epithelium (acanthosis) - Papillomatosis (deep papillae)	- Hyperkeratosis - Thin epithelium - Flat papillae with no SC fat
	Subepithelial CT → shows a chronic inflammatory reaction	
Comp.	If + atypia ⇨ progression to vulval cancer (1– 5%) [■] ✓✓	

Clinical picture

Age:.....postmenopausal females

Symptoms

- . May be.....asymptomatic ✓
- . OR.....PPdd (narrow vagina)

Signs

- White or red patches
- Scratch marks → ulceration ± 2^{ty} infection
- Shrinkage of the vulva (Kraurosis vulvae)

D. Diagnosis

- **Lichen sclerosis** ⇨ the commonest vulval white lesion ☒☒
- **Tumors** ⇨ VIN or invasive
- **Infections** ⇨ Candidiasis, C. latum & accuminatum
- **Others** ⇨ psoriasis, lichen planus, contact dermatitis

Investigation

- To exclude malignancy ⇨ colposcopy → multiple biopsy ☒
- To search for a cause ⇨ vaginal swabs for candidiasis, GTT

Treatment**1. General**

- Symptomatic → sedatives, antipruritic
- TTT of the pdf → DM, candidiasis

2. Hyperplastic dystrophy

- * local hydrocortisone cream 1% 1x3 (for 6 wks – 6 m)
- * local clobetasol propionate 0.05% oint (for 3 m)

3. Atrophic type

- * local testosterone cream 2% 1x3 for 6 wks

4. Mixed dystrophy

- * hydrocortisone (6 wks) then testosterone forever

5. If fails or premalignant (+atypia) →

- Local destruction (laser)...or
- Wide local excision.....or
- Simple vulvectomy



Vulvar Intraepithelial Neoplasia



✧ Squamous ✧

C/P

Age:.....postmenop. (HPV -ve) → usually leads to unifocal lesion
premenop. (HPV +ve) → usually leads to multifocal lesions

Symptoms

- May be.....asymptomatic ✓
- OR.....PPdd

Signs

- Change in color → white.....pigmented
- Change in contour → flat.....raised

Inv.

- **Colposcope** ⇔ VIN is *multifocal* in $\frac{2}{3}$ of cases[■] ✓
 ↳ Follow up → *recurrent* in 25%
- **Biopsy** ⇔ definitive: VIN I, II, III (as in CIN)

TTT

1. Localized lesions

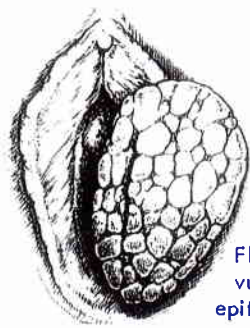
- Local excision ⇔ with wide safety margin -5mm[■]
- Local destruction ⇔ 5% 5-FU or laser or cryocautery

2. Multifocal lesions ⇔ Simple vulvectomy (also in Paget's disease)

✧ Non-Squamous ✧

Paget disease (Adenocarcinoma in situ)

- **Mac** ⇔ eczematoid lesion, sharply demarcated, hyperemic with white scaly areas → pathognomonic *cake icing* effect
- **Mic** ⇔ PAGET CELL
- **Fate** ⇔ in 1-2 % → underlying adenocarcinoma of APOCRINE SWEAT gland

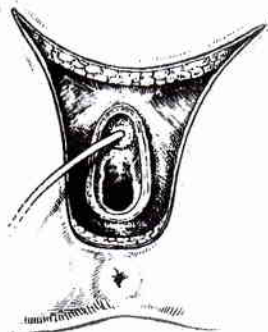
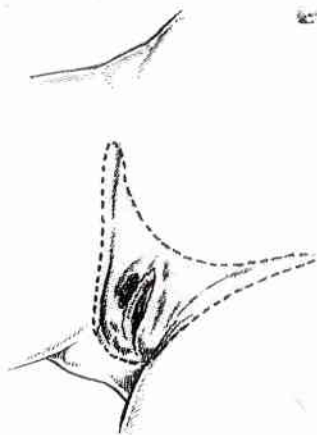


Florid
vulval
epithelioma



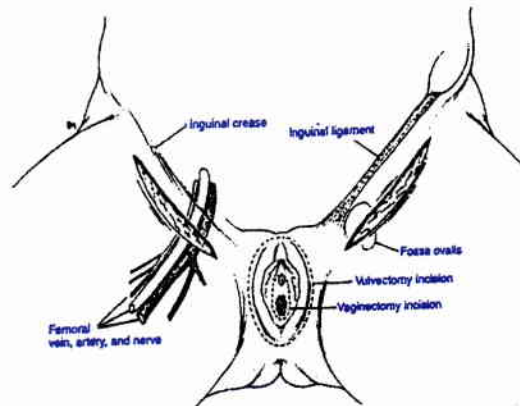
Epithelioma
of clitoris

Butterfly Sncision = radical vulvectomy



*** Complications:** ✓ mortality: 1-3 %

- . **Artery** → hge & shock
- . **Vein** → DVT & p.embolism
- . **Lymph** → lymphedema of LL
- **Nerve** → parathesia of thigh
- **Skin** → infection & necrosis
- **Bone** → osteitis pubis
- . **Vulva** → disfigurement
- . **Vagina** → dyspareunia
- . **Urinary** → UTI



Tri-radiate incision

Invasive Vulvar carcinoma

Predisposing factor

- **Age** → 60–70 years ⇨ 4% (the 4th genital tract tumor)
- **Vulvar dystrophy** ✓ ⇨ in 50 % of cases [□]
- **Chronic irritation** ⇨ infection, mechanical (pruritis vulvae), chemical

Pathology

Mac. ⇨ Cauliflower.....ulcer.....infiltrating

Mic. ⇨ Squamous Cell Carcinoma [□] (usually well differentiated [□])

Spread

Local ⇨ vagina, perineum, urethra, bladder, rectum, bones

Lymphatic ✓ (mainly [□]) ⇨ there is cross-over between the 2 sides

- 1st relay → superficial inguinal & femoral (groin LNs)
- 2nd relay → LN of Cloquet (m.b. affected *without* 1st relay)
- 3rd relay → deep inguinal & external iliac...common iliac.....paraaortic

Blood ⇨ late (LLBB)

Clinical picture

1- Symptoms ⇨ PPdd.....discharge.....bleeding

2- Signs ⇨ Mass.....ulcer.....LNs

Investigations

Any suspicious area (change in color / contour)

➡ Colposcopy → Toluidine blue → biopsy (punch, multiple)

Treatment

◆ Surgery

Remove skin over vulva & inguinal ligaments by

.....*butterfly incision*....OR.....*triradiate incision*

+ Removal of SC fat

+ Removal of inguinal LNs

◆ Radiation (ADJUVANT) ⇨ postoperative for LNs if:

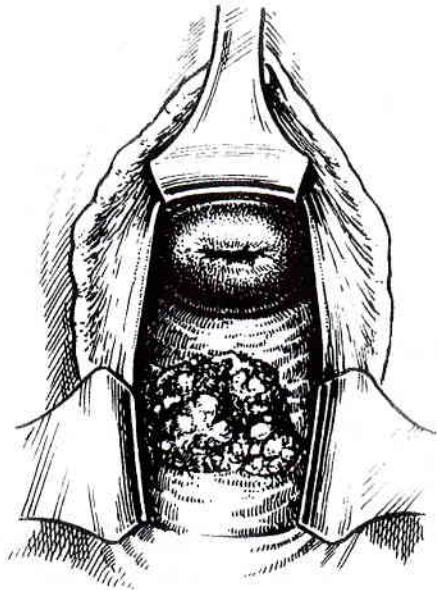
- LNs are ≥ 4+ve or Cloquet LN +ve
- Tumor is > 4 cm or affection of (clitoris / urethra / vagina)

◆ Prognosis

Cancer of CLITORIS or that reaching URETHRA or VAGINA have

bad prognosis (early vascular spread, direct spread to LN of Cloquet)

CARCINOMA OF THE VAGINA



Vaginal Neoplasm

Benign	Malignant		
.Papilloma	<i>Primary</i>		<i>Secondary</i> ✓✓✓
.Granuloma	Carcinoma	Sarcoma	- esp. anterior wall suburethral
.Adenoma	- VAIN	- Adult	- esp from uterus (endometrial
.Adenosis	- Invasive	- Botryoides	cancer or choriocarcinoma)

Age 60–70 years ⇔ 1% (the 5th genital tract tumor)

Pathology

- Squamous cell carcinoma...the commonest [♂] ✓
- Other rare types
 - Adenocarcinoma → on top of Gartner duct (Wolffian remnant)
 - Clear cell adenocarcinoma → on top of vaginal adenosis (DES)
 - Verrucous → papillary squamous cell carcinoma

Clinical picture

- *Symptoms* ⇔ PPdd, bleeding
- *Signs* ⇔ cauliflower / ulcer / infiltrative (upper 1/3 of post vag wall [♂])

Spread

- Direct → vulva, cervix.....bladder, urethra, rectum....lat (parametrium)
- Lymphatic → upper 2/3 (like cervix).....lower 1/3 (like vulva)
- Blood → rare (LLBB)

Treatment

- ◆ Radiotherapy ✓✓ radium or cesium ± external pelvic irradiation
- ◆ Surgery
 - Upper 2/3 → Radical hysterectomy + removal of upper part of vagina
 - Lower 1/3 → Radical vulvectomy + removal of lower part of vagina
 - If bladder or rectum is involved → pelvic exenteration
- ◆ Prognosis → bad ✗ (vaginal wall is thin & vascular → early metastasis)



Chapter 5

Urogynecology

Prolapse

RVF uterus

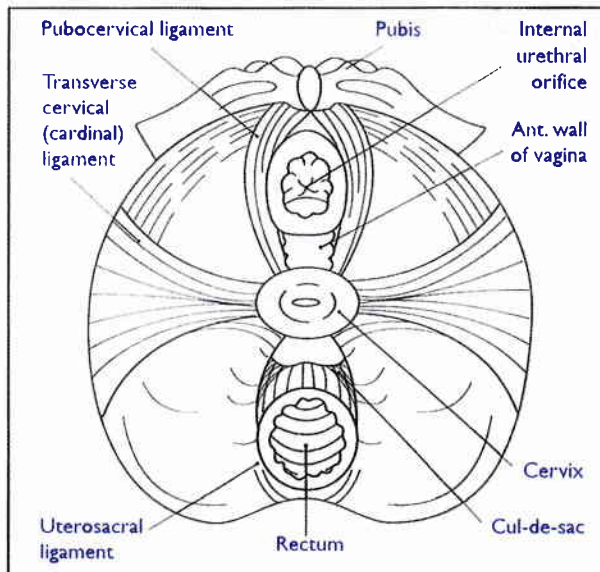
Chronic uterine inversion

Stress urinary incontinence

Detrusor instability

Fistula

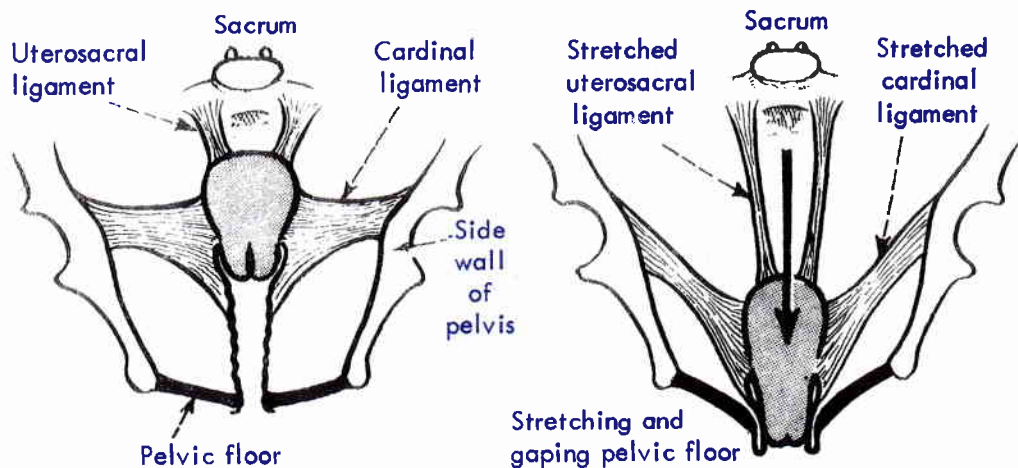
Prolapse



The transverse cervical ligament.

UTEROVAGINAL PROLAPSE

Herniation of the genital tract through the pelvic diaphragm.



----- Genital prolapse -----

Definition . Vertical downward *displacement* or *descent* of ≥ 1 of genital organs
. It may include extragenital organs such as (bladder, rectum, ovary)

Incidence . 5–10% (↓ in blacks $\Rightarrow$ d.t. stronger pelvic CT)
. The commonest is *cystocele*, the least is *urethrocele*

Etiology $\Phi \Phi \Phi$

1st) *Predisposing factors*

→ Acquired

Obstetric trauma (high parity + rapid, successive deliveries)

1st stage	. Excessive bearing down < full cx dilatation
2nd stage	- Delivery in squatting position - Prolonged / Obstructed (large fetus) - Excessive fundal pressure - Forceps / ventouse / breech extraction
3rd stage	. Crede's method $\Rightarrow$. Bad repair of vaginal tears (esp. hidden) $\Rightarrow$
Puerp.	- Early ambulation - Subinvolution of uterus

Menopausal atrophy d.t. cessation of estrogen trophic effect

→ Congenital (occurs in young age = Virginal Uterine Prolapse)

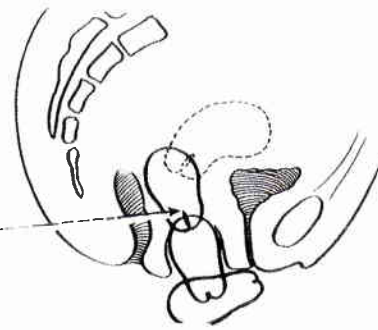
- Congenital weakness of $\Rightarrow$ endopelvic fascia & ligaments
- Congenital CT disorder $\Rightarrow$ visceroptosis e.g. *Ehler Danlos*
- Congenital lesions of bones $\Rightarrow$ split pelvis
- Congenital lesions of nerves $\Rightarrow$ spina bifida
- Congenital RVF $\Rightarrow$ uterus becomes along the vertical axis of vagina

2nd) *Precipitating factors*

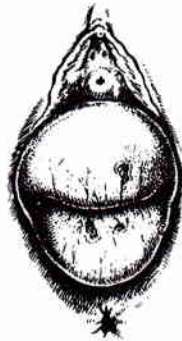
- $\uparrow^{ed}$ abd. pr. $\Rightarrow$ chronic cough, constipation, ascites, swellings, obesity ✓
- $\uparrow^{ed}$ uterine size $\Rightarrow$ myohyperplasia, subinvolution, small fibroid
- Traction on uterus by $\Rightarrow$ large cervical polyp

UTEROVAGINAL PROLAPSE

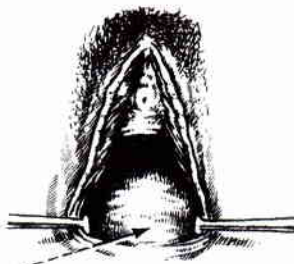
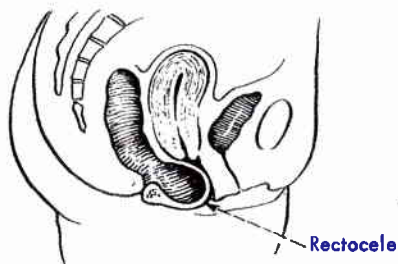
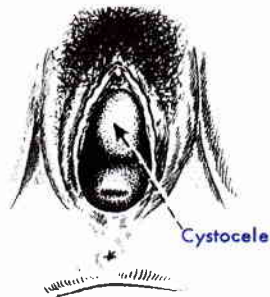
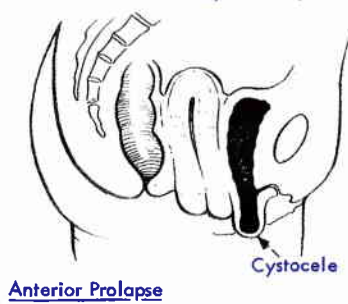
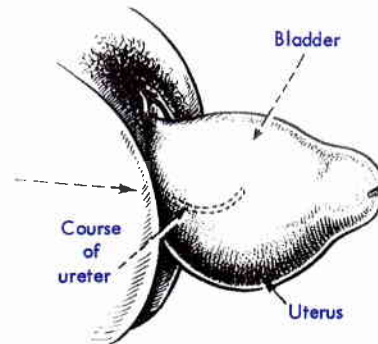
First degree: cervix still inside vagina.



Second degree: the cervix appears outside the vulva. The cervical lips become congested and ulcerated.



Third degree: complete prolapse.



Types of prolapse

1] Uterine prolapse

- 1st° → the cervix is below the level of ischial spine
- 2nd° → the cervix is outside the vulva
- 3rd° → the uterus is outside the vulva (*complete procidentia* [□])

2] Vaginal prolapse

- **Anterior vaginal wall**
 - Upper $\frac{3}{4}$ → cystocele.....(bet. bladder sulcus & tr vaginal sulcus)
 - Lower $\frac{1}{4}$ → urethrocele....(bet. tr vag sulcus & submeatal sulcus)
 - Both → cysto-urethrocele
- **Posterior vaginal wall**
 - Upper $\frac{1}{3}$ → enterocele (hernia of peritoneal sac into DP [□])
 - Middle $\frac{1}{3}$ → rectocele
 - Lower $\frac{1}{3}$ → anocele ✗
- **Both anterior and posterior vaginal walls** → cysto-rectocele
- **Vault prolapse** [⤵]
 - More common in TAH > subtotal (as cx is removed with its lig.) [☹]
 - Can be avoided by suturing vault to Mackenrodt's or uterosacral lig.

3] Combined prolapse

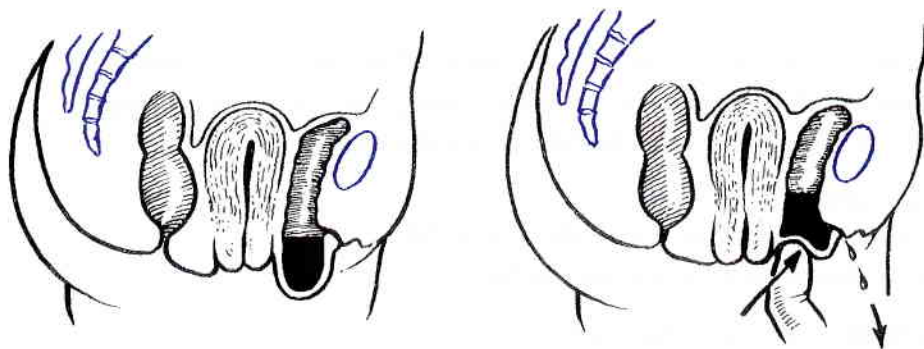
Utero-vaginal [⇒] uterus descends 1st followed by inversion of vaginal walls

Vagino-uterine [⇒] large cysto-rectocele → traction on uterus → uterine descent

Effects & Complications of prolapse

A) On genital organs

- * **Vagina**
 - Thickening, congestion & keratinization of mucosa → ↑ secretions
 - *Stretch* of vaginal wall → smooth due to loss of rugae
 - Infection [⇔] trophic (decubitus) ulcers (poor healing d.t. ↓ E)
- * **Cervix**
 - Thickening, congestion & keratinization of mucosa → ↑ secretions
 - *Elongation* of supravaginal part (d.t. strong attachment of MC lig.) [□]
 - Infection [⇔] chronic hypertrophic cervicitis + trophic ulcers
- * **Tubes & ovary**
 - Dyspareunia if ovaries are prolapsed in DP
 - Ovarian congestion → polymenorrhea
- * **Uterine body** → pelvic congestion; i.e.:.....



B) On urinary organs

Urethra

- Stress urinary incontinence (a very common^u association✓✓)
- In large urethrocele → kinking & dysuria

Bladder

- Incomplete urination → residual urine → ↑ infection & stone formation

Ureter & kidney (very very rare) ✗

- Kinking of ureters → hydroureter → hydronephrosis ± infection

C) On rectum & anal canal

Sense of incomplete or difficult defecation

Clinical picture

Symptoms

1. Swelling

- . Sense of heaviness or feeling of something protruding from vulva
- . It can interfere with sitting & walking
- . It is increased on straining or squatting
- . Early, it is relieved on lying down then, late it becomes stationary

2. Pain

- D**ragging sensation in the lower abdomen
- D**orsal pain (sacral^u) d.t. stretch of *uterosacral* ligament
- D**ysmenorrhea (congestive)
- D**yspareunia (congestive, ovarian, mechanical)

3. Congestive symptoms

- . Bleeding (Menorrhagia or Polymenorrhea)
- . Discharge → leucorrhea
- . Trophic ulcers → purulent or serosanguinous discharge

4+ Urinary symptoms

- Stress urinary incontinence
- Repeated infections → dysuria, frequency
- *May need to reposit* the swelling to urinate

5+ Rectal symptoms

- Sense of incomplete defecation, dyschezia
- Constant desire for defecation
- *May need to reposit* the swelling to defecate

6. Rarely ⇨ Infertility

- Dyspareunia + lack of sexual satisfaction ✓ (patulous vagina)
- Congestion of *ovary* (anovulation) & *endometrium* (↓ implantation)

Notes

Signs

→ General.....search for

- Association → anemia ✓
- Cause → chest (bronchitis), obesity
- Result → renal failure ✗

→ Abdominal.....search for

- Association → split pelvis, spina bifida, visceroptosis
- Cause → ascites, masses
- Result → tender loin or hydronephrosis

→ Local

* Inspection to know the..... TYPE, DEGREE, COMPLICATIONS, SUI ☠

- In the *lithotomy* position, if not detected..)
- In the *squatting* position

* Palpation

- Raise bladder neck & reassess SUI
- Differentiate between 2nd & 3rd degrees by trying to approximate fingers above the prolapsed swelling (*grip sign* ☞)
- Tone of levator ani (roll by 2 fingers or press by 2 fingers on posterior outer vaginal wall)

* P/V

- 1st° prolapse
- May feel gurgling sensation over enterocele
- For associated conditions

* Bimanual

- Uterus: size, RVF
- Ovaries & tubes
- Any pelvic masses

+ Cusco → cervical condition

+ Sounding → for length of cervix (to detect supravaginal elongation)

* P/R → to differentiate rectocele from enterocele (*Malpus test* ☞: by combined PV & PR → fingers are not approximated in entero-)

Investigations

✓ Clinically diagnosed ☐☐

Preoperative → CBC, chest X-ray, ECG

For complications

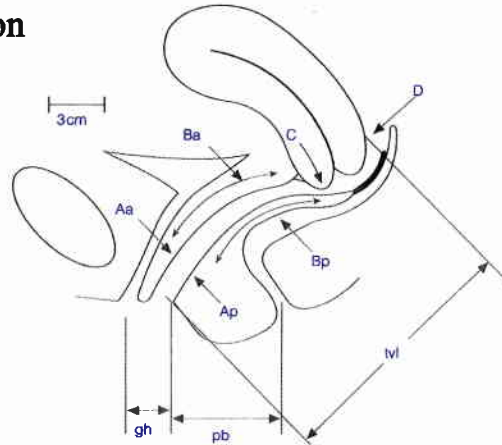
- Urine analysis, C&S
- Renal function tests ± IVP

Types of displacement

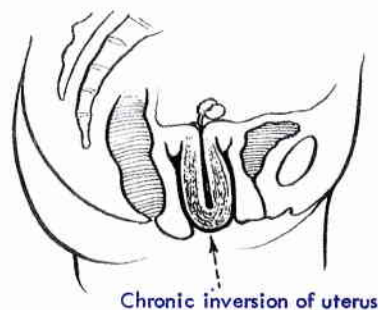
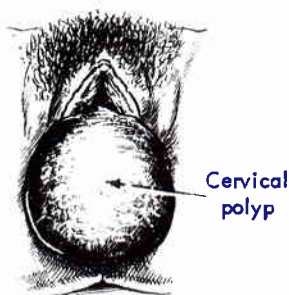
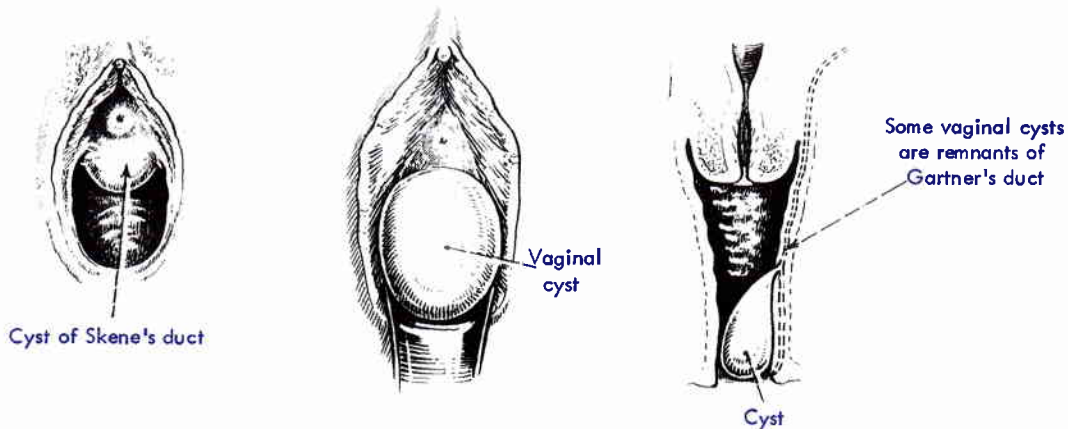
- . AnteriorAVF (80%), acute AVF (cochleate)
- . PosteriorRVF (20%) ⇨ mobile / fixed
- . LateralLevo-rotated, Dextro-rotated
- . DownwardsProlapse, Inversion
- . UpwardsPregnancy ✓✓

Aa	Ba	C
gh	pb	tvI
Ap	Bp	D

Three-by-three grid used to express the quantified pelvic organ prolapse (POP-Q) system. Aa = point A of the anterior wall; Ba = point B of the anterior wall; C = cervix or cuff; D = posterior fornix; gh = genital hiatus; pb = perineal body; tvI = total vaginal length; Ap = point A of the posterior wall; Bp = point B of the posterior wall.



Six sites (points Aa, Ba, C, D, Bp, Ap), genital hiatus (gh), perineal body (pb), and total vaginal length (tvI) used for pelvic organ support quantitation.



Differential diagnosis

ΦΦΦ

Q...Other types of displacements (vertical, lat., ant., post.)

Anterior vaginal wall

- ▶ **Cystocele** → reducible, compressible, catheter can pass through it
- ▶ **Anterior vaginal wall cysts** → e.g. Gartner (Wolffian remnants)
 - . Irreducible, catheter doesn't pass into it
 - . Usually multiple & lateral
- ▶ **Urethral or bladder diverticulae**
 - . Compression → urine or pus
 - . Confirmed by cystoscopy

Posterior vaginal wall

- ▶ **Rectocele** → reducible, compressible, finger can pass through it (PR)
- ▶ **Posterior vaginal wall cysts** → e.g. implantation dermoid
 - . Irreducible, finger doesn't pass into it
- ▶ **Enterocoele** → . Anatomic site , P/R
 - . Gurgling sensation , +ve impulse on cough

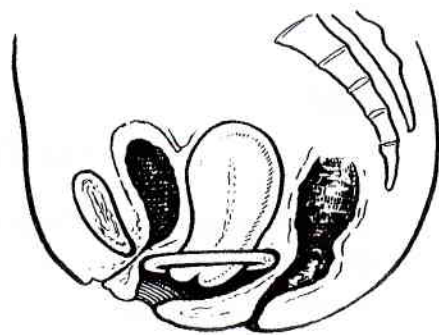
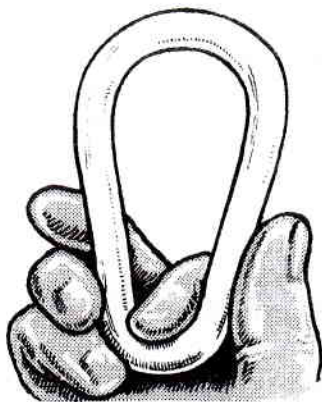
Uterine prolapse

- ▶ **Second from third degree uterine prolapse**
 - . By approximation of fingers above the prolapsed swelling
- ▶ **Congenital from supravaginal elongation of cervix:**
 - . Length of the cx is known by the sound
 - . In congenital → - Younger age
 - vaginal vault is above ischial spine (i.e. DEEP FORNICES)
- ▶ **Uterine polyp from chronic inversion**
 - . Polyp → no cervix, sound can be passed around, uterus is felt abdominally
 - . Inversion → no cervix, sound can't pass, uterus is not felt abdominally

Treatment

(A) Prophylaxis

- Proper ANTENATAL , Proper INTRANATAL , Proper POSTNATAL care
- Prevent causes of INCREASED intra-abdominal pressure
- Proper SUSPENSION of vaginal vault after hysterectomy...how??



(B) Palliative

Indications (*contraindications to surgery*)

- Congestion
 - Pregnant (prolapse, RVF corrects spontaneously[□])
 - After labor (till edema resolves)
 - Till healing of trophic ulcers
- Contraindication to surgery → **very young**
- Refusal of surgery → **very old**

Methods (*only in minor degrees*)

- ① **Behavioral changes** ⇨ stopping smoking & weight loss
- ② **Estrogen[□]** ⇨ improves muscle tone quality → ↓ symptoms
- ③ **Postnatal physiotherapy[□]** ⇨ **Kegel's exercises** e.g.
 - . Trying to hold urine voluntary in gradual ↑^{ing} time
 - . Adduction of both thighs

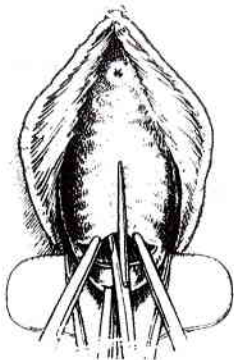
④ **Vaginal pessary**

➔ Ring pessary e.g. **Smith-Hodge**

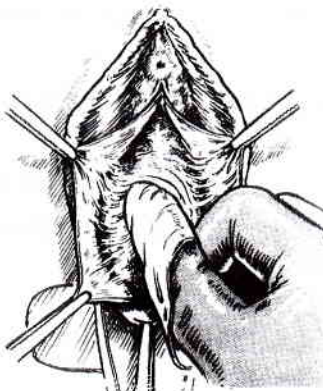
- Place the pessary then ask the patient to strain to see if displacement occurs. It stretches vaginal wall → prevents uterine descent & ↓ sympt.
- Precautions
 - Vaginal douching daily
 - Cleaned every month
 - Changed every 3 months (now up to 1 yr)
- Complications
 - Infection, ulceration, discharge
 - Failure
 - Discomfort if too large

➔ Cup & stem pessary X

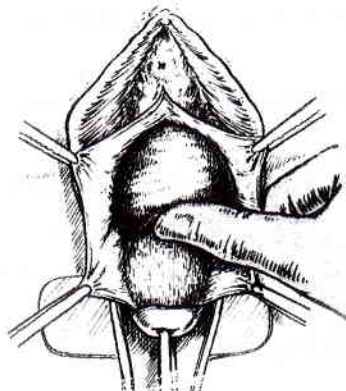
(if pelvic floor is very weak in old patients)



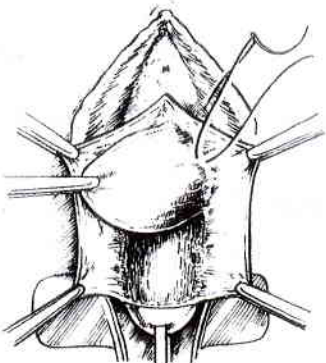
ANTERIOR REPAIR 1. Opening up the anterior vaginal wall.



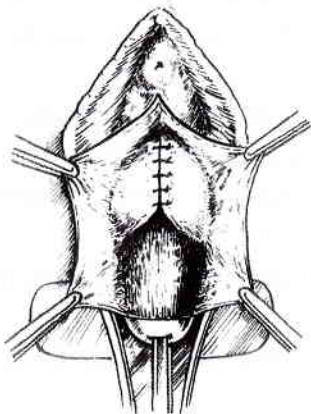
2. Mobilising cystocele from vaginal walls.



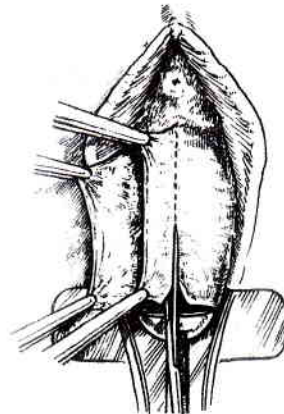
3. Mobilising cystocele from cervix.



4. Placing the tightening suture as far laterally as possible.



5. Obliteration of the cystocele completed.



6. Removing redundant vaginal wall. This is followed by closure with a continuous catgut suture.

(C) Surgical**1. Preoperative**

- ▶ **General** → treat anemia, chest condition, ↓ obesity
- ▶ **Local** * **Treat decubitus ulcer by**
 - Vaginal antiseptics ± vag. pack
 - If resistant → local 'E' (esp if postmenopausal)
 - If still resistant → paint with silver nitrate
- * **Treat urinary infection**

2. Operations**1] Vaginal wall prolapse****** CYSTOCELE ⇨ anterior colporrhaphy (anterior repair)**

- Incision.....in the anterior vaginal wall & extend it till the tr. vag. sulcus
- Dissect.....the bladder upwards
- Plicate.....the pubovesical fascia over it (± approximation of both bladder pillars)
- Remove.....the redundant vaginal tissue & then close

**** RECTOCELE ⇨ posterior colpo-perineorrhaphy (posterior repair)**

- Incision.....between vagina & perineum & extend it upwards in the vagina
- Dissect.....the rectum downwards
- Plicate.....the recto-vaginal fascia over it (± approximation of both levator ani)
- Remove.....the redundant vaginal tissue & then close

- The key in all operations is the proper identification & repair of **FASCIAL DEFECTS**
- If both ant. & post. repair are done together → **CLASSICAL REPAIR** (start ant then post)
- If perineum is deficient → **PERINEORRHAPHY**

**** URETHROCELE ⇨ Kelly's suture**

- Multiple stitches are taken on both sides of urethra
- A urinary catheter is left for 5 days

**** ENTEROCELE ⇨ culdoplasty**

1. **Vaginal (McCole culdoplasty)**
2. **Abdominal (Moschowitz culdoplasty)**
 - Obliteration of the Douglas pouch
 - By approximating both uterosacral ligaments together

History

William Fothergill (1865–1926) was born in Southampton to a Quaker family. He proposed suturing the stumps of cardinal ligaments to the cervical stump to provide uterine support.

2] Uterine prolapse

** Young & not completed her family

↳ **ABDOMINAL SLING** ✓ (sacro-cervicopexy)

- Nylon tape fixes the cx to the anterior longitudinal ligament of sacrum
- Either ① *directly* or ② *indirectly* through a stitch taken laterally in left psoas muscle to avoid constricting the sigmoid

** Older patient & completed her family

↳ **VH ± PFR** ✓

** If she doesn't want to remove the uterus

↳ **FOTHERGILL** [□] (Manchester)....rare

- D&C (D....to avoid postoperative stenosis & C....to exclude pathology)
- *Anterior colporrhaphy*
- *Amputation of the cervix* (remove unhealthy cervix & induce FIBROSIS ⇄)
- *Shortening of uterosacral ligament* (to keep uterus AVF)
- *Posterior colpoperineorrhaphy*

** In very old patients unfit for surgery

↳ **LE FORT** (partial colpocleisis).....rare

- Under local anesthesia → a strip is created between ant & post vag. walls
- Then suture both walls together → permanent elevation of uterus
- Two small channels are left on each side for → drainage of discharge

3] Vault prolapse

** Abdominally ⇄ **Abdominal sling** (sacro-colpopexy)

** Vaginally ✓ ⇄ **Sacro-spinous fixation** [□] (suturing of the vaginal vault to the sacrospinous lig on both sides)

3. Postoperative care

- **Early**.....- Antibiotics & local cleanliness
 - Vaginal pack + catheter (to prevent reactionary hge)
- **Late**
 - Avoid recurrence of the ppf factors (e.g., lifting heavy weight)
 - No intercourse for 2-3 ms
 - No preg. for 2-3 yrs ⇄ VD is **possible** by (generous episiotomy)
BUT CS is **preferable** by (many)

4. Complications

✧ General

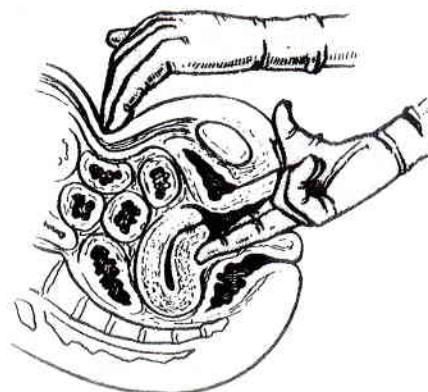
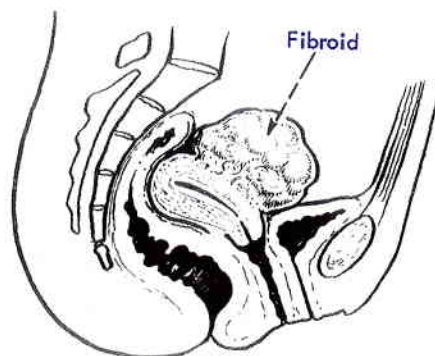
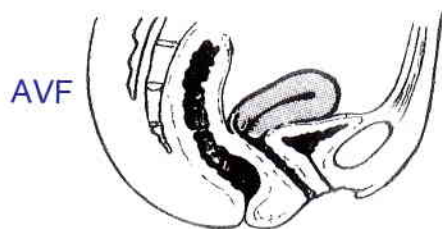
- Haemorrhage
- Infection
- Injury ↻

✧ Special

- Anterior repair → retention of urine ✓, SUI, bladder injury
- Posterior repair → dyspareunia d.t. fibrosis, rectal injury
- Abdominal sling
 - Intestinal obstruction (indirect type)
 - Ureteric or vascular injury (iliacs & median sacral)
 - Psoas spasm & pain in upper part of left thigh
- Fothergill's operation
 - Infertility → cervical stenosis, poor cervical mucous
 - Incompetent cervix → abortion, PTL
 - Infection → fibrosis → cervical dystocia
- Le Fort
 - No intercourse
 - Impossible D&C if PMB occurs

✧ Recurrence ΦΦΦ

- Incidence → 5–10 % ▫ (usually occurs in the 1st 2 yrs)
- Correction is done after → 3–6 m (but is more difficult)
- Causes
 - ↳ **Preoperative**
 - BRD preparation e.g. br. asthma or preoperative infection
 - BRD timing (best is post-menstrual or 3–6 months after labor)
 - *Missing* diagnosing congenital weakness
 - ↳ **Operative**
 - BRD choice of operation
 - BRD technique of operation e.g. poor dissection & haemostasis
 - *Missing* an operation e.g. enterocele, elongated cervix
 - ↳ **Postoperative**
 - BRD care (infection & haemorrhage)
 - BRD spacing & management of labor
 - *Missing* tt of the ppf e.g. chronic cough



--- Retroverted Flexed Uterus ---

Definition

- Posterior uterine displacement in which the angles of *version* & *flexion* are directed backwards
- Incidence $\Rightarrow$ **20 %** mostly asymptomatic

Etiology

Mostly Congenital ✓✓, rarely may be due to

- **Pelvic causes**
 - Uterine prolapse (d.t. laxity of ligaments)
 - Uterus pulled backwards to DP by adhesions or posterior wall fibroid
 - Uterus pushed backwards by ovarian cyst in the uterovesical pouch
- **Puerperal RVF**
Due to laxity of ligaments during puerperium esp when (Prolonged lying on back + full bladder + Subinvolution)

Types

1. **Mobile RVF** $\rightarrow$ can be corrected bi-manually $\rightarrow$ no C/O
2. **Fixed RVF** $\rightarrow$ due to adhesions to sacrum $\rightarrow$ complications

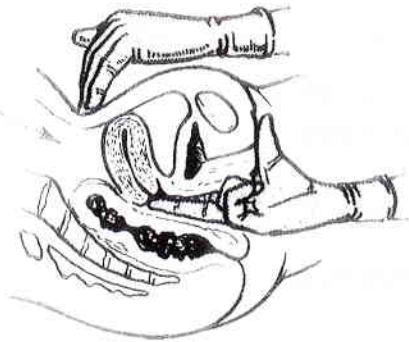
Degrees

	1 st degree	2 nd degree	3 rd degree
Uterus	In line with vagina	Horizontal	Upside down
Fundus points to	Promontory	Sacral body	Tip of coccyx
Cervix direction	Downwards	Forwards	Up & forwards

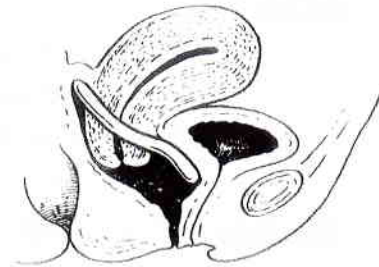
Clinical picture

→ Symptoms

- ① **Asymptomatic** $\rightarrow$ most cases are discovered accidentally
- ② **Pain**
 - Dorsal pain (low backache d.t. stretch of uterosacral ligaments)
 - Dysmenorrhea (spasmodic & congestive)
 - Deep dyspareunia (uterine body $\pm$ ovaries is present in DP)
- ③ **Congestive symptoms**
 - Menorrhagia / Polymenorrhea
 - Congestive dysmenorrhea
 - Leucorrhea
- ④ **Pressure symptoms** $\rightarrow$ on bladder & rectum



Pessary Test:



D.D. Of Mass or Fullness of DP



1. Uterine

- RVF (the most common ✓✓)
- Posterior wall fibroid

2. Tubal

- Ectopic pregnancy
- Hydrosalpinx / hematosalpinx / pyosalpinx

3. Ovarian

- Masses (neoplastic or non-neoplastic)
- Ovarian prolapse

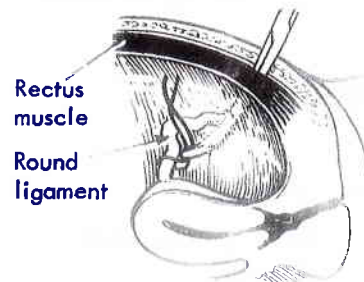
4. Douglas Pouch

- Mass → . Pelvic hematocoele
 . Pelvic abscess
 . Encysted T.B. peritonitis
- Nodules → Endometriosis ✓
 T.B., B.
 Malignancy (metastatic > primary)

5. Urinary tract → ▶ectopic kidney◀

6. GIT → . Fecal mass . Tumors of rectum or sigmoid

7. Retroperitoneal → fibroma, sarcoma, tumors of sacrum



Gilliam's Ventrosuspension Operation

⑤ Reproductive symptoms XXX

- Repeated abortion (14 – 16 week)
- Incarcerated RVF gravid uterus → ant. sacculation → rupture uterus
- Infertility X (very very rare) d.t. congestion

➡ Signs

- **P/V** → determine degree & mobility
(uterus must be 1st degree RVF to be prolapsed)
- **Sound** → confirm the direction

➡ Special test ⇨ Pessary test to correct the RVF (if mobile)

- Push cervix upwards backwards by pressing at the anterior fornix
- Pull uterine body forwards abdominally by the other hand
- Place Smith-Hodge pessary to correct the RVF for a month
- If symptoms disappear, then the cause was due to RVF → operable

Treatment

(ONLY if symptomatic with +ve pessary test)

A) Prophylaxis

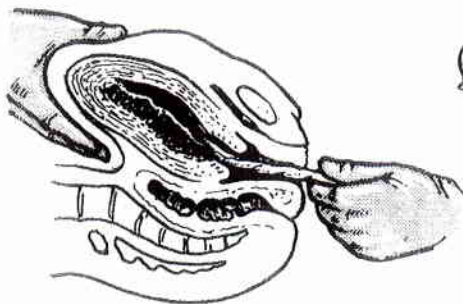
- During puerperium ⇨ - Avoid prolonged lying on the back
- Frequent bladder evacuation
- Plication of round ligament to pull the uterus forwards →
in operations where adhesions between back of
uterus & sacrum are expected

B) Palliative

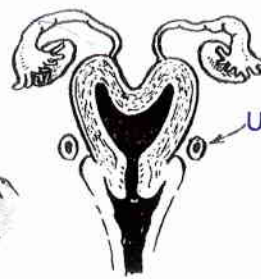
- *Smith-Hodge pessary*
 - Stretches the posterior fornix & the uterosacral lig. →
 - cervix is pushed backwards & the uterus forwards

C) Surgical (rare)

- Ventrosuspension ⇨ **Modified Gilliam's operation ✓**
 - The round ligaments are pulled forwards through the
inguinal canal to be sutured to the rectus sheath
- Ventrofixation XX
 - Uterine body is fixed to the back of rectus sheath
 - NEVER done → posterior sacculation → rupture uterus



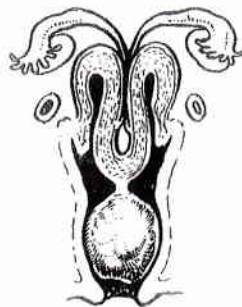
Expelling the placenta



A few days later

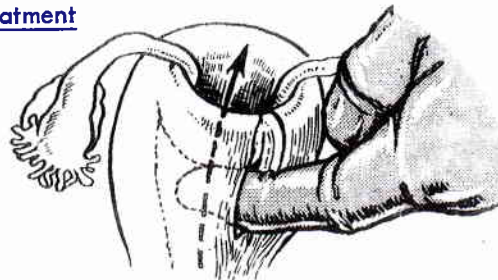
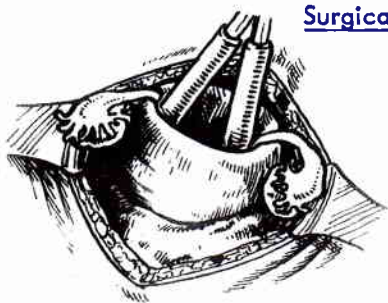


A few months later



Note the short thick pedicle

Surgical Treatment



~ Chronic uterine inversion ~

(very rare)

Etiology

- Persistence of acute inversion (rare obstetric complication)
- Fundal submucous polyp with short thick pedicle
- Rarely in senile atrophic changes in uterus

Degrees

- 1st** → Fundus inverted downwards in uterine cavity but didn't pass through cervix (*cupping of fundus*)
- 2nd** → Fundus *protrudes* through cervix
- 3rd** → The whole uterus is turned inside out & the endometrium is exposed to the outside (*Complete Inversion*)

Clinical picture

♦ SYMPTOMS

- Mass protruding from vulva
- Persistent irregular uterine **BLEEDING**
- Persistent lower abdominal **PAIN** & dyspareunia
- Persistent offensive vaginal **DISCHARGE**

♦ SIGNS

- Abd ⇔ cupping of fundus in 1st & 2nd. Absent fundus in 3rd
- Vag ⇔ uterine body with its endometrial surface is felt in 2nd & 3rd
- Uterine sound ⇔ pass for a short distance or can't pass at all

Differential diagnosis

- Uterine polyps
- Prolapse
- Causes of offensive discharge

Treatment

♦ Hysterectomy (esp. vaginal hysterectomy)

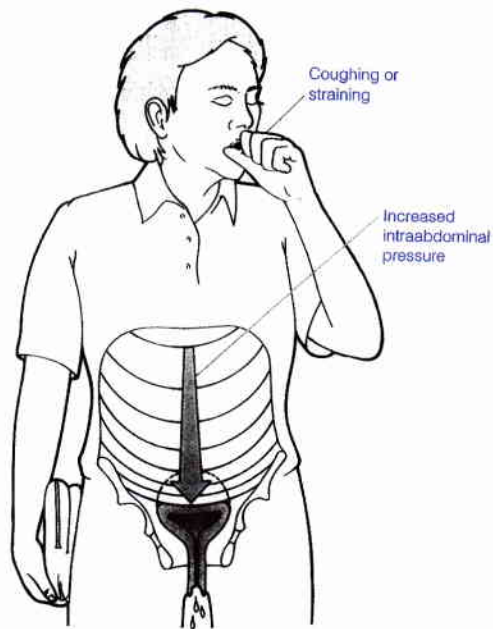
♦ If the patient is young & fertility is desired

Surgical: abdominal or vaginal operation to

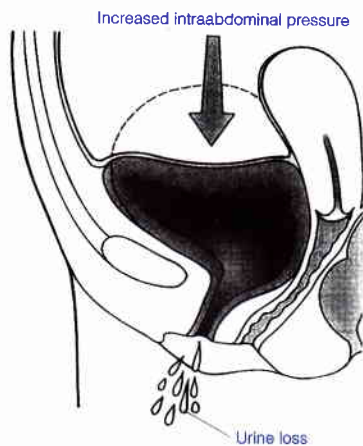
- Cut tight cervical ring anteriorly or posteriorly
- Reposit the uterus
- Resuture the divided cervical ring

Conservative: Aveling-S-shaped repositior

Stress urinary incontinence



Patient with defective fascial support of urethrovesical (U-V) junction. Increased intraabdominal pressure results in urine loss.



🔑 URINARY INCONTINENCE

Definition → loss of the VOLUNTARY control of the act of micturition

Types ΦΦ

➡ EXTRA-URETHRAL INCONTINENCE

1. *True incontinence* [☐]

Always wet ⇔ vesicovaginal or bilateral ureteric fistula

2. *Paradoxical incontinence*

Sometimes wet ⇔ vesicovag. (if high, small, valvular) or unilat. ureteric

➡ TRANS-URETHRAL INCONTINENCE

3. *False incontinence* ^{☐☐}

Nerve lesions → loss of the bladder sensation (*unconscious incontinence*) → retention overflow with residual urine left

4. *Nocturnal (enuresis) incontinence*

Psychiatric, neurologic, urologic or parasitic problem

5. *Stress incontinence* ✓

The most common cause in CBP (60%)

NB ⇔ It may be normal in pregnancy [☐] & cervical fibroids

6. *Urgency incontinence (Detrusor instability)*

The most common cause after menopause (20-30%)

NB ⇔ *Mixed incontinence* = SUI + DI (20-30%)

* Stress Urinary Incontinence (SUI) 📌

Definition

▶ **Involuntary loss of urine**

- . due to acts of ↑ed intra-abdominal pr. (as straining, coughing, sneezing)
- . when intra-vesical pressure exceeds the intra-urethral pressure
- . in absence of any detrusor activity

▶ **It is a major social & hygienic problem diagnosed by**

- The symptom of stress incontinence, which is
- Objectively demonstrated (sign), &
- Confirmed by urodynamics (investigation)

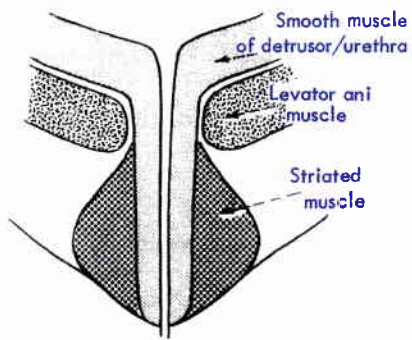
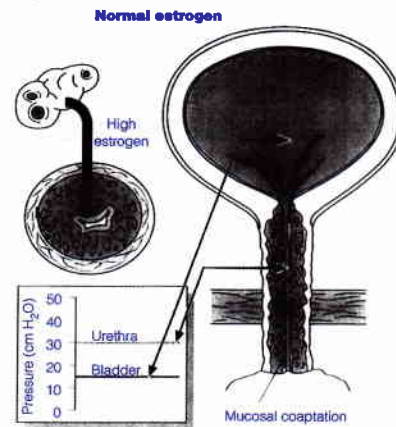
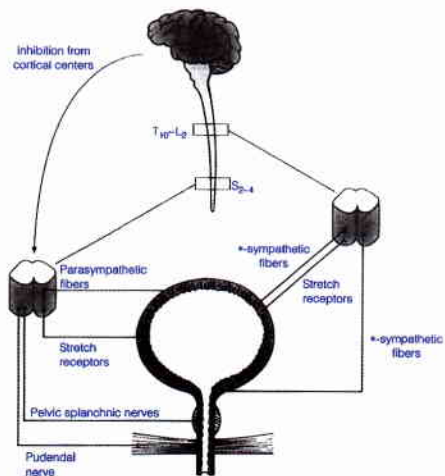
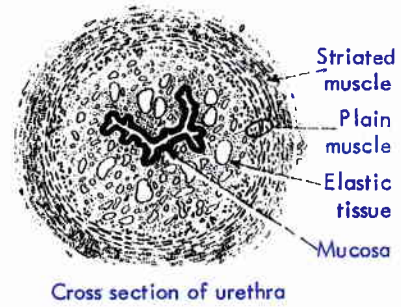
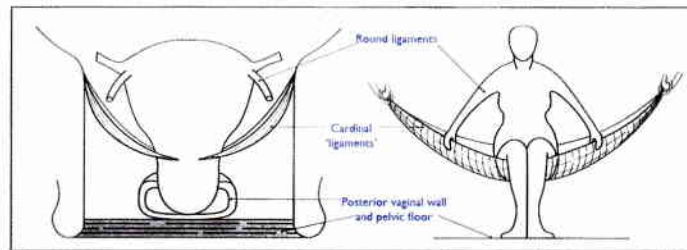


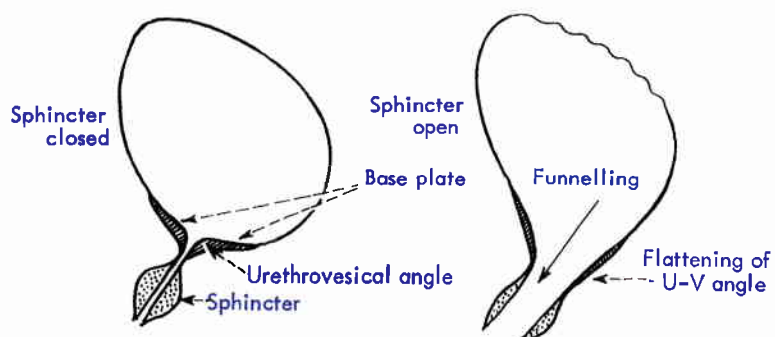
Diagram of urethral closure mechanism



Estrogen increases urethral resting pressure, making involuntary urine loss more difficult.



Mechanism of prolapse - If the 'holding apparatus', or the 'supporting apparatus' is stretched, some descent of the uterus, or of the vagina, will occur, particularly if the intra-abdominal pressure is increased.



Factors which normally prevent SUI

- Normal continence is d.t. factors maintaining a PRESSURE in urethra > bladder
- Normal micturition is d.t. transient CONTROLLED reversal of this equilibrium
- Incontinence ∴ is d.t. UNCONTROLLABLE loss of this mechanism



1. Factors maintaining low intravesical (tension) pressure (0–20 cmH₂O)

- **Passive factors** (d.t. the viscoelastic properties of bladder wall) ⇔ allows distensibility i.e. compliance
- **Active factors** (d.t. neurological control) ⇔ the bladder doesn't contract in response to stretch of the baroreceptors

2. Factors increasing the intraurethral pressure (80–100 cmH₂O)

- **The mucosal seal** → good coaptation of the urethral mucosa [□]
- **Vascular CT cushion** around urethra (hermetic seal) → *E. dependent* [□]
- **Urethral sphincters** → continuous tone [□]
- **Intra-abdominal situation** of both bladder & upper part of urethra
This leads to equally transmitted pressure on both sides upon cough i.e. ↑ both intravesical & intraurethral pressures i.e. no leak
- **The hammock theory** ✓
The urethra rests on the anterior vaginal wall supported by the pubovesical fascia (**posterior pubo-urethral lig.** [□]) which is attached laterally to the fascia on the levator ani ATLA (Arcus Tendineus Levator Ani). All these compress the urethra against the vagina upon any ↑ in abdominal pressure

3. Posterior urethro-vesical angle of 90–100°

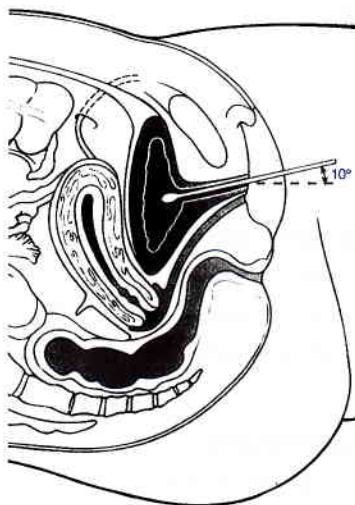
Etiology of SUI

1. Intrinsic sphincteric deficiency (sphincter / genuine SUI)

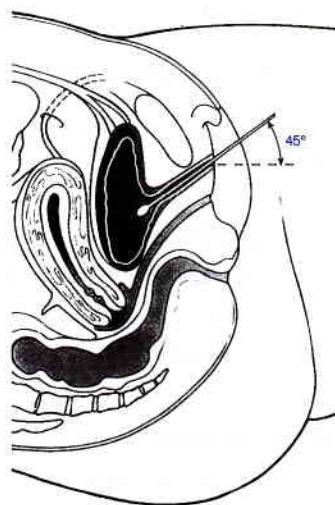
- Congenital weakness of the sphincter
- Acquired (post-partum ✓✓ or post-menopausal)
- ↳ **Funneling** → opening of bladder neck

2. Anatomic incontinence (urethral hypermobility)

- Weak pelvic floor support (loss of the hammock)
- Usually associated with genital prolapse
- ↳ **Rotational descent of urethra** → Loss of PUVA (>100°)



A



B

A, B: Cotton swab test.

Grades

- **Grade I** → incontinence occurs only in *severe* stress (coughing)
- **Grade II** → incontinence occurs with *moderate* stress (walking)
- **Grade III** → incontinence occurs with *mild* stress (standing)

Diagnosis

1) History of

- Loss of urine → - immediately in SUI (*spurt*)
- after few seconds in DI (*stream*)
- Etiology e.g. → difficult repeated deliveries (usually MP²)

2) Examination

- General → menopausal changes, bronchitis, obesity
- Vaginal → associated prolapse ✓✓, tone of levator ani

3) Special tests ΦΦ

▶ THE COUGH STRESS TEST

- . Ask the patient to *strain* or *cough* to observe any escape of urine
- . 1st done in lithotomy position & can be repeated while standing

▶ BONNEY 'MARSHAL' ELEVATION TEST

- . Indication → *positive stress test* + cystocele
- . Elevate cystocele & ask patient to strain
- . If SUI **disappears** → it was d.t. bladder descent
& not sphincteric weakness

▶ YOUSEF TEST

- . Indication → *negative stress test* + large cystocele
- . Elevate cystocele & ask patient to strain
- . If SUI **appears** → it was masked by kinked urethra
d.t. the large cystocele

▶ PAD TEST

- . Patient performs daily activity while wearing a pad
- . Re-weight the pad to know the degree of urine escape

▶ Q-TIP TEST

- . A cotton-tipped applicator is inserted in urethra
- . Ask the patient to strain
- . Movement > 30° from horizontal suggests hypermobility

... Urodynamics...

→ CYSTOMETRY

- Measure the rise of intra-vesical pressure while filling bladder by H₂O
- Thus it is a measurement of compliance (pressure / volume changes):

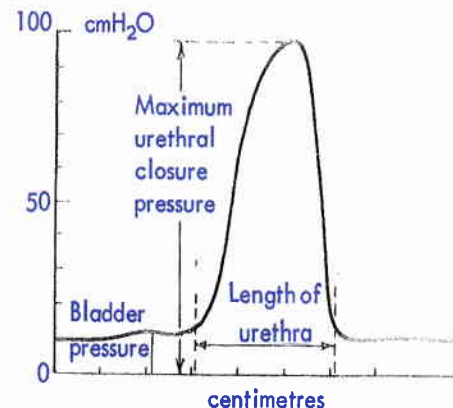
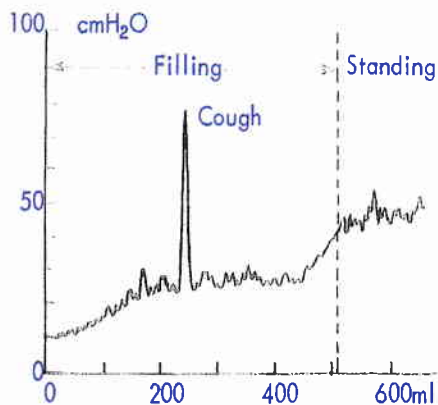
Resting pressure	5 cm H ₂ O	Detrusor contraction	During filling (provocation)+ve in DI.....
1 st desire to void	150-200	Detrusor LPP (N. -ve)	vesical pr. at which loss of urine occurs during filling
Maximum capacity	400 ml	Coughing	Spurt of urine+ve in SUI.....
Micturition pressure	< 70 cm H ₂ O	Valsalva LPP (N. -ve)	vesical pr. at which loss of urine occur on max. straining
Residual urine	< 50 ml	Stream interruption	voiding can be stopped upon request

→ URETHRAL PRESSURE

- Measuring the intra-urethral pressure along the urethra
- Urethral Closing Pressure
= Intra-urethral pr. (80–100) minus intra-vesical pr. (0–20)

→ UROFLOWMETRY esp in ♂

- Measuring rate of urine flow through the urethra
- Normal flow is 25–50 ml / second



Investigations

1) Urine C&S → ✓✓ to exclude cystitis (which can cause DI)

2) Urodynamics **The eye-ball of SUI**.....

- **Cystometry**
- **Urethral profilometry**
- **Uroflowmetry**

3) Radiology to assess bladder neck

- **Cysto-urethrography**
- **TV-sonography**

4) Endoscopy (cystoscopy)

- Esp if there is hematuria
- In SUI → bladder neck is opened on straining

5) Electro-myography → to evaluate pelvic floor muscles

Treatment

(1) *Conservative*

□ **Indications**

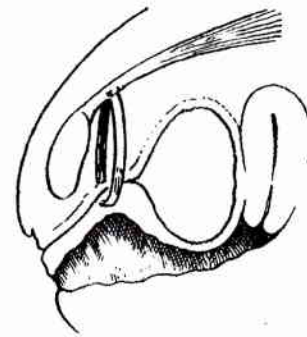
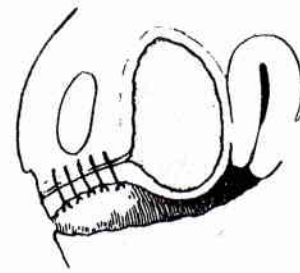
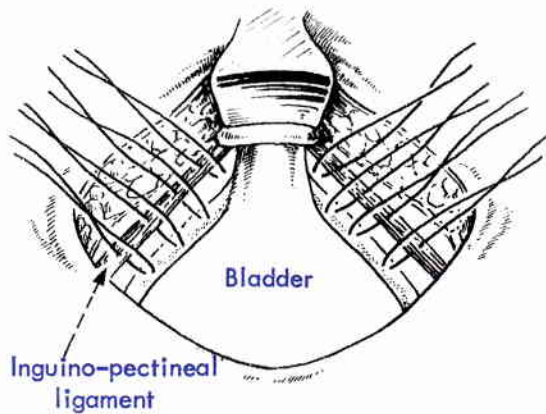
- Mild degrees of SUI
- Mixed incontinence (SUI + DI) → it is better to avoid surgery in DI⁺
- Much young (postponed till after delivery)
- Much old (unfit for surgery)

□ **Methods**



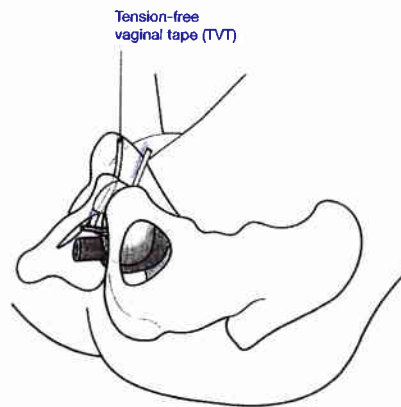
- **Life-style modifications** → weight loss, stop smoking, ↓ fluid intake
- **Physiotherapy**
 - Kegel pelvic exercises
 - Faradic current stimulation (for levator ani)
- **Vaginal cones**
 - A set of cones with gradual ↑ in weight (●●●●)
 - Inserted twice daily in vagina for 15 minutes
- **Pessary** (to elevate bladder neck)
- **ERT** (oral or local) → ↑ mucosal thickness & vascular cushion

BURCH'S COLPOSUSPENSION

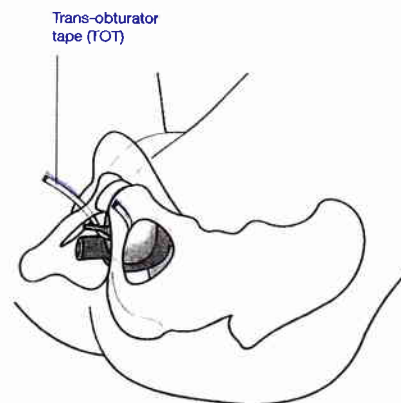


History

John Burch (1900-1977), from Nashville, followed his father into gynaecology and developed the Burch colposuspension per-operatively when he was unable to suspend the bladder neck from the retropubic periosteum (the usual operation of the time).



Tension-free vaginal tape (TVT). © 2004 GyneCare, Worldwide, division of Ethicon Inc.



Trans-obturator tape (TOT). © 2004 GyneCare, Worldwide, division of Ethicon Inc.

- ▶ The key to success is proper suspension (repositioning) of BN & not overcorrection → urinary **retention** (the disadv. of all operations ✓)
- ▶ Generally abd. operations have better outcomes & the best is **Burch**
- ▶ Nowadays TVT & TOT are gaining popularity with promising results
- ▶ **POP-Q** is: pelvic organ prolapse quantification system
- ▶ Vaginal defects may be central or **lateral** (treated by paravaginal repair)
- ▶ Patients will **deliver** by C-Section

(2) *Surgical*

⇒ Vaginal operations

▪ **Kelly's operation**

- Sutures (2–3) are placed below urethra to support it
- *Kennedy modification* → more sutures beneath the whole urethra
- Adv → the easiest procedure, also corrects cystocele
- Disadv → high failure rate 50%

▪ **TVT (tension free vaginal tape) = Suburethral sling**

- A tape is suspended below urethra.....pass it blindly on both sides.....till it appears from the anterior abdominal wall
- Tension is adjusted by pulling the needles up while straining
- May be done through Obturator fossa (TOT✓✓✓)
- Adv → . simple & rapid & under local anesthesia
 . high success rate (90%)
- Disadv → Bladder injury (avoided by using cystoscopy)

⇒ Abdominal

▪ **MMK (Marshall-Marchetti-Krantz) X**

- From vaginal fascia on BN *sides* to periosteum of back of SP
- Disadv → osteitis pubis (5%)

▪ **Burch colposuspension** ✓✓

- From vaginal fascia on bladder neck *sides* to iliopectineal ligaments (Cooper's ligament). 2-3 sutures on each side
- Adv → best success rate (90%)
- Disadv → enterocele [□] (the vaginal axis is pulled anteriorly)

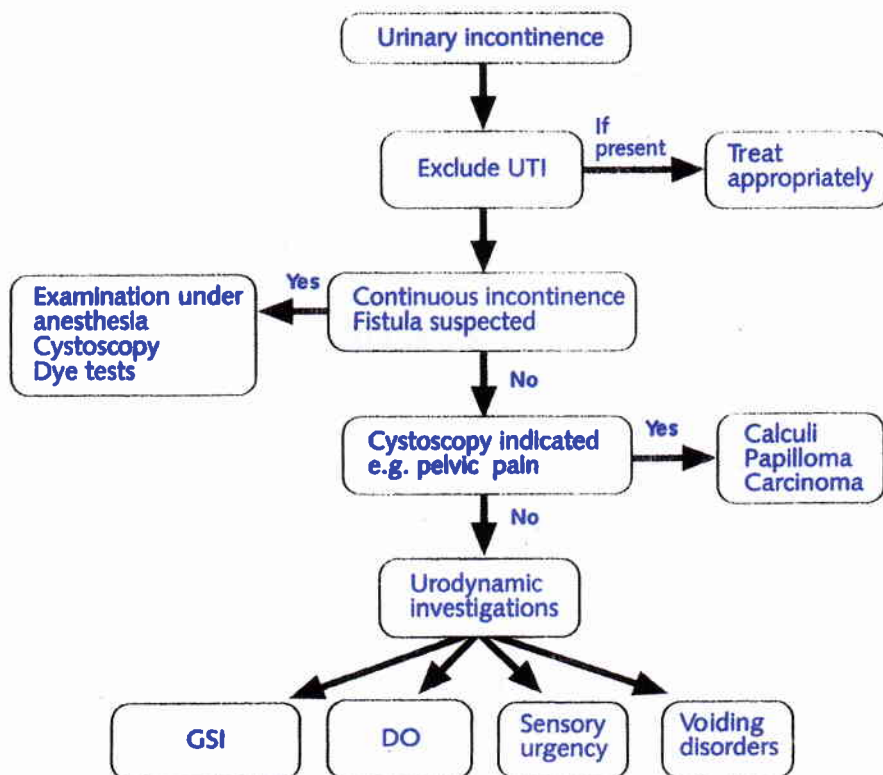
⇒ **Combined (NOT COMMON NOW) Urethral sling**

- Nylon tape is suspended below BN
- Attached to the anterior abdominal wall by
 - Laparotomy
 - Laparoscopy
 - Bladder neck needle suspension

⇒ **Paraurethral implants**

- Injection of collagen / silicon in submucosal layer of the bladder neck
- Leads to increased urethral closing pressure
- Disadv → transient success → re-injections usually needed

Algorithm for urinary Incontinence.





DETRUSOR INSTABILITY (DI) OVERACTIVE BLADDER (OB)

Definition uninhibited detrusor contractions
↳ involuntary loss of urine

Etiology

- ❑ Idiopathic
- ❑ Local bladder irritation → cystitis....stones....tumors
- ❑ Neuropathic ⇔ *detrusor hyperreflexia* e.g. DS
- ❑ Psychologic

Diagnosis

- ❑ Urgency → strong desire which can't be resisted → large gush (stream) of urine before reaching a convenient place
- ❑ Frequency (>6 by day & >2 by night)

Investigations

- ❑ Urine analysis is a must ✓ → excludes UTI
- ❑ Blood sugar → excludes DM
- ❑ Ultrasound & cystoscopy → free
- ❑ **CYSTOMETRY** → filling bladder > 15 cm H₂O stimulates bladder contraction (a provocation test) → prolonged urination after some while
 - * NB → also provocation may occur at *orgasm* ▢
 - * In the contrary → incontinence at *penetration* ▢ suggests SUI

Treatment

- ❑ Life style modifications → ↓ fluid + caffeine intake (stimulator)
- ❑ Bladder drill → self training by trying to hold urine for progressively increasing time
- ❑ **Drugs**
 - Anticholinergics ▢ (Detrol) Tolterodine (muscarinic antagonist)
 - Tri-cyclic antidepressants (doxepin)
 - Muscle relaxants (oxybutinin)
 - Calcium channel blockers (nifedipine)

ΦΦ Frequency of Micturition ~

➔ Urologic

- Infection → urethritis, cystitis
- Stones → oxalates, phosphates, urates
- Tumors

➔ General

- Diabetes mellitus & insipidus
- Cold environment

➔ Gynecologic

- Infections (vaginitis, cervicitis) → spread by lymphatics → UTI
- Painful lesions in the vulva (acute vulvitis)
- Tumors pressing on bladder (fibroid, ovarian cyst)

➔ Obstetric

- During pregnancy
 - . 1st trimester ⇨ pressure by the gravid uterus
 - . Late pregnancy ⇨ pressure by fetal head
- During puerperium
 - . To get rid of extra fluid accumulated in pregnancy

ΦΦ Retention of urine ~

➔ Urologic ⇨ stone / stricture / swelling (tumor)

➔ Gynecologic

- Vagina → hematocolpos ? / tight vaginal pack
- Cervix → large fibroid
- Uterus → posterior wall fibroid *incarcerated in DP*
- Ovary → any ovarian swelling *incarcerated in DP*
- DP → pelvic hematocele / abscess

➔ Obstetric

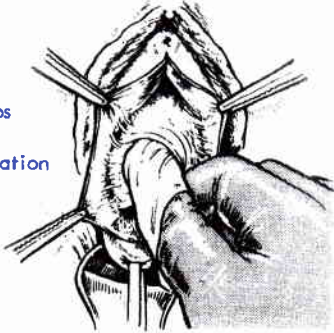
- Incarcerated RVF
- Postoperative retention of urine (esp episiotomy)✓✓
(due to reflex spasm of internal urethral sphincter)

* Management of urine retention

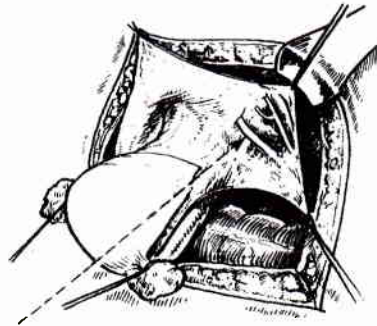
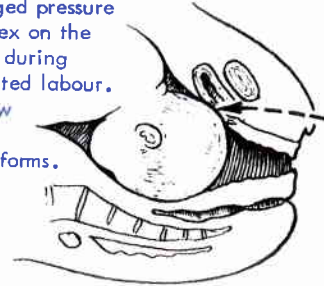
- ▶ Treatment of the cause
- ▶ Simple maneuvers → sitting on bath tub + sound of running water
- ▶ If failed → cholinergic drugs
- ▶ If failed → catheterization

Fistula

A tear develops during mobilization of the bladder



Prolonged pressure of vertex on the vagina during obstructed labour. In a few days slough forms.



Exposing ureter in radical hysterectomy.



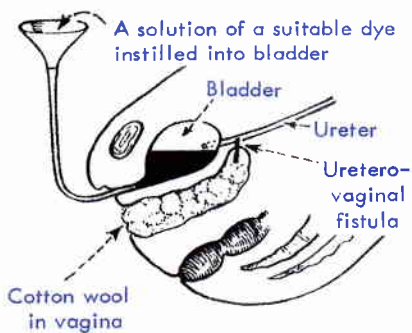
Area of necrosis which sloughs.



Bladder wall tends to prolapse through fistula.



Scar tissue forms and the fistula becomes lined with transitional epithelium.



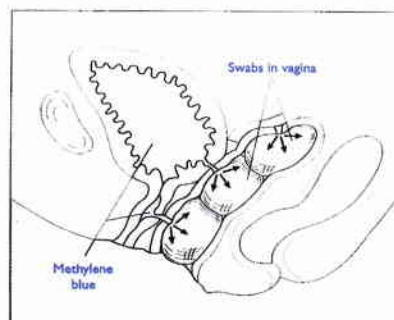
A solution of a suitable dye instilled into bladder

Bladder

Ureter

Uretero-vaginal fistula

Cotton wool in vagina



Detecting a vesicovaginal fistula.

GENITOURINARY FISTULAE

① Vesico-Vaginal Fistula

Etiology ΦΦ

- ▶ **Congenital** very rare → malformation at division of urogenital sinus
- ▶ **Traumatic**
 1. *Direct or accidental trauma* ⇔ fracture pelvis or neglected FB
 2. *Surgical* ⇔ vaginal (VH, anterior repair).....abdominal (TAH)
 3. *Obstetric* ⇔ direct (forceps).....appear immediately
indirect (necrotic: obst. labor)....appear after 1-2 wk
- ▶ **Inflammatory**
- ▶ **Malignant fistula** → malignant tumor opening in both sides (cr cervix)
- ▶ **Irradiation fistula** → during malignancy therapy (EAO)

Clinical picture

① Symptoms

- True incontinence → paradoxical if HIGH, SMALL, VALVULAR
- Soreness, pain & excoriation of vagina & pruritis vulva
- Recurrent UTI → all lead to social isolation & depression

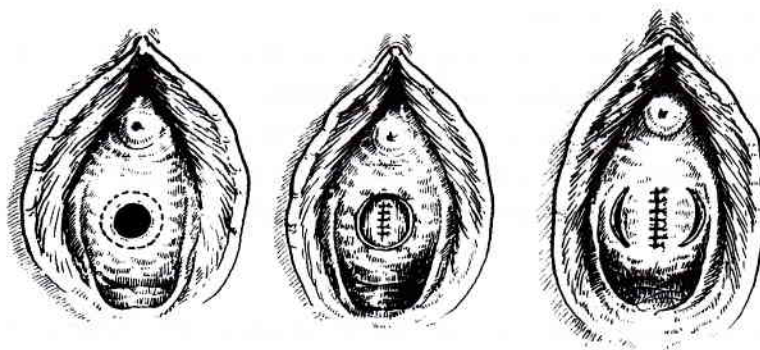
② Signs

- a) *Inspection*
 - Constant stream of urine
 - Red, excoriated vulva with phosphate [□] encrustations
- b) *Palpation & PV*
 - Fistula → site, size, number
 - Mobility → degree of mobility of the vaginal wall (assess FIBROSIS)
- c) *Sims speculum examination (in Sim's position)*
 - Patient lies on Lt side with extended Lt thigh & knee. While Rt thigh & knee are flexed. Lt arm is behind her back
 - *Best way for visualization of ant. vag. wall fistula*

③ Special test

- *Methylene blue test* ✓ ⇔ put three pieces of gauze into vagina. If
 - . Upper 2 are unstained → no fistula
 - . Upper 1 or 2 stained blue → V.V. fistula
 - . Upper 1 or 2 soaked only by urine → ureteric fistula
- *Metal click test* [□] ⇔ sound of urinary catheter & ut sound

Technique of Closure



Vaginal skin is dissected as shown. This may leave a rather large wound but it is necessary to obtain healthy vascular skin edges and to avoid tension. Absorbable suture material should be used. Note the relaxation incisions which are sometimes required to allow the wound to close easily without tension.

Investigations**1) Preoperative**

- CBC.....Urine analysis and C&S
- Renal function tests.....IVP (renal function)

2) Diagnostic

- EUA → repeat the methylene blue ✓✓
- Cystoscopy ± dye (efflux through ureteric orifice)

Treatment**1. Time of operation** → wait 3-6 months after injury till ↻

- Resolution of infection & edema
- Spontaneous closure may occur if small
- Preparation of the patient

2. Preoperative preparation

- General ⇔ ttt of anemia
- Urinary ⇔ ttt of UTI (antibiotics ± acidifying agents)
- Genital ⇔ apply zinc oxide ointment or vaseline ⇔ to avoid skin irritation

3. Operative technique**➤ Vaginal****A) Dedoublement (Flap splitting)** → most common

- Circular incision around the fistula to excise all the tract
- Close bladder by inverted Lambert suture (to avoid mucosa)
- Close the vagina as a separate layer

B) Saucerization (Sim's) → in fibrotic fistula

- Elliptical incision around fistula
- Excise tissues obliquely (more on vaginal side)
- Close by interrupted sutures as a single layer

C) Latzko operation → in small, fibrotic, inaccessible fistula (vault F)

- Partial upper colpocleisis to obliterate vaginal vault

D) Pedicle graft → for irradiation fistula (to ↑ blood supply)

- Use gracilis, rectus abdominis, bulbocavernosus graft

E) Schuchardt incision

- Mediolateral incision (episiotomy like) for better exposure

➤ Abdominal

* **Indications** → ureteric, inaccessible, recurrent fistula

* **Approach** → transvesical, transperitoneal, extraperitoneal

4. Postoperative care

- Catheter left for 2 weeks[□], take care by:
 - Ample fluids + acidify urine + antibiotics
 - Check patency every 2 hrs
 - If blocked → inject saline
 - If failed → replace it by a triple way catheter
- Removal of catheter
 - Before removal → intermittent clamping for 24 hours
 - After removal → encourage voiding every 2 hours
- Avoid intercourse for 2-3 months
- Avoid pregnancy 2-3 years (if got pregnant → elective CS) USCS 🐼

5. Causes of failure

- *Preoperative*
 - Bad preoperative preparation e.g. anemia
 - Infection of genital or urinary tract
- *Operative* (the main factor for success → softness & mobility of tissues)
 - Bad choice of operation
 - Bad technique of operation (poor dissection & hemostasis)
- *Postoperative*
 - Haemorrhage & infection
 - Improper care of catheter

② Uretro-Vaginal Fistula ✂

- ▶ *Etiology* ⇨ mainly gynecologic surgery^{□□}
- ▶ *Symptoms* ⇨ incontinence: Unilateral (paradoxical).....Bilateral (true)
- ▶ *Signs* ⇨ MB test → -ve with urine soaking of the gauze
- ▶ *Investigations*
 - Cystoscopy → no efflux of urine from affected side
 - Chromocystoscopy → red efflux only from healthy side
- ▶ *Treatment*
 - Reimplantation into bladder, Uretrocolic implantation, Ileal conduit
 - Nephrectomy → if kidney is destroyed

③ Utero-Vesical fistula ✂

- ▶ *Symptoms* → . Menouria (Yousef syndrome) → cyclic hematuria
 - . Amenorrhea
 - . No urinary incontinence (not a vesico-uterine fistula)
- ▶ *D.D.* → endometriosis of bladder
- ▶ *Treatment* → hormone induced amenorrhea → may cause spontaneous closure

4 Recto-Vaginal Fistula

Etiology ⇨ as in VVF

Clinical Picture

1) Symptoms

- Incontinence of flatus (feces pass only if diarrhea)
- Vulvovaginitis → persistent offensive vaginal discharge

2) Signs

Inspection → excoriation & inflammation of vulva ± perineal laceration

PV → to feel the fistula, fibrosis, induration

Speculum → rectal mucosa may be seen bulging into vagina

PR → may feel fistula & pass finger through it into vagina

Investigation

- Proctoscopy & sigmoidoscopy
- Oral charcoal & then → inspect vagina for black discoloration
- Barium enema may be done

Treatment

↳ **Prophylaxis** ⇨ good management of labor

↳ **Curative**

⌘. **Preoperative preparation** (for 3-5 days)

- Enema 2-3 times daily ± Low residue diet
- Oral antibiotics (to ↓ rectal flora) as neomycin + Flagyl

⌘. **Operative** (3-6 months after delivery)

1. Low fistula ✓✓

* **Large with deficient perineum** → **Lawson Tait operation**
Transform fistula into complete perineal tear

* **Small with adequate perineum** → **Vernon-David operation**

1- Circular incision around fistula

2- Fistula tract is dissected & inverted into the rectum

2. Middle fistula → **Flap splitting**

3. High fistula Colostomy to divert feces then.....repair fistula

↳ **Postoperative**

- NPO for 48 hours (IV fluids).....then low residue diet for 3 days
- Oral antibiotics (to sterilize intestine) + systemic antibiotics
- No sexual intercourse for 2 months.....No pregnancy for 2 yrs

Definition

Etiology

- Obstetric trauma (passage / power / passenger)
- Gynecological trauma
- Direct trauma

Clinical picture

Symptoms

- Incontinence
 - 1st to flatus & liquid stools
(Hard stools are prevented by the tone of levator ani)
 - Then late to hard stools
- Persistent vaginal offensive discharge (vaginitis)

Signs

- Perineal tear extending from vagina to anal canal
- External anal sphincter is torn (known by dimple on each side → the retracted ends of sphincter)
- Absent normal anal corrugations
- P/R → absent sphincteric tone & voluntary control

Treatment

- 1. Preoperative preparation** (for 3-5 days) as usual

- 2. Operation** → 3-6 months after delivery

Lawson Jait (anatomical repair in layers)

- H-shaped incision
 - Horizontal part → between vagina & rectum
 - Upper vertical limbs → surround vagina
 - Lower vertical limbs → surround anal canal
- Separate anal canal from vagina by dissecting horizontal limb
- Catch the retracted ends of external anal sphincter
- Close the rectum → by inverted Lambert sutures
- Suture external anal sphincter ± May approximate levator ani
- Close the vaginal mucosa
- Close the perineal skin

- 3. Postoperative** as usual

Chapter 6

Operative

Dilatation & Curettage

Hysterectomy

Hysteroscopy

Laparoscopy

Pelvi-abdominal mass

D.D.Of Vulva & Vagina

Radio- Chemo-therapy

Sexual disorders

Preparation

- *Position* ⇨ *Lithotomy*
- *Anesthesia* ⇨ GEA or paracervical block
- *Bimanual examination of the uterus* ⇨ size, mobility, adenexae
- *Sterilization* ⇨ *Catheterization* ⇨ *Toweling*
- *Expose the vagina* ⇨ by self retaining Auvard speculum
- *Grasp the cervix* ⇨ by volsellum (for gentle traction & cx manipulation)
- *Uterine sounding* ⇨ (to know the length & direction of uterus)

Uses

	Diagnostic	Therapeutic
1. Congenital		
2. Bleeding		
3. Amenorrhea		
4. Contraception		
5. Infertility		
6. Neoplasm		

Complications

1. Anesthesia
2. Early
 - Hemorrhage
 - Injury
 - Infection
 - Abdominal operation.....injury to ureter, intestine
 - Vaginal operation.....adhesion, fibrosis
 - Special media.....air in laparoscopy, dye in HSG
3. Later on.....DVT, psychological

Contraindications

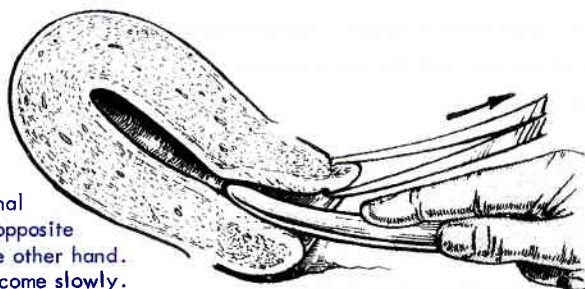
1. Amenorrhea of unknown nature ⇨ pregnant ?
2. Bleeding of unknown nature ⇨ cancer ?
3. PID ⇨ spread

Timing

- Gyna.....postmenstrual
- Obst.....3–6 months after labor

Technique

The dilator must be held firmly in one hand and pressed into the canal against traction in the opposite direction exerted by the other hand. Resistance must be overcome slowly.



✂ Dilatation ✂

✂ Indications

➡ Treatment of cervical stenosis

- Spasmodic dysmenorrhea.....<20
- Pin-hole os → infertility.....20-40
- Drainage of hematometra or pyometra.....>40

➡ Prior to other operations

□ On cervix ↘

- Trachelorrhaphy
- Amputation / Conization
- Cautery (esp. in NG)
- Fothergill operation

□ On uterus ↘

- Curettage or Evacuation
- Polypectomy
- Hysteroscopy (if cx canal is narrow)
- Insertion of intracavitary iridium or IUCD in NG

□ On tubes ↘

- Insufflation
- HSG

✂ Contraindications

- Active local infection
- Intact pregnancy

✂ Complications

- Upward spread of infection
- Rupture of tubo-ovarian abscess

▶ Types (different sizes are known by the No typed, from 0.5 – 16)

- * **Hegar** → single or double ended metallic
- * **Fenton** → single ended metallic (tapering)

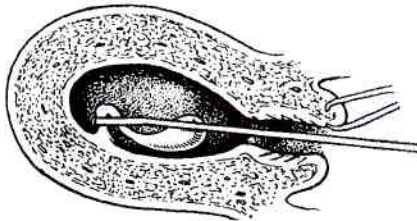
▶ Other methods for dilatation (used when cx is closed & firm)

- * PG analogues (inserted vaginally or intracervically if possible)
- * Hygroscopic dilators (Dilapan) used in therapeutic abortion

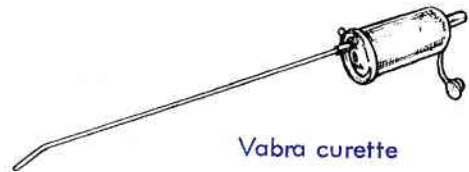
Sims Uterine Curette



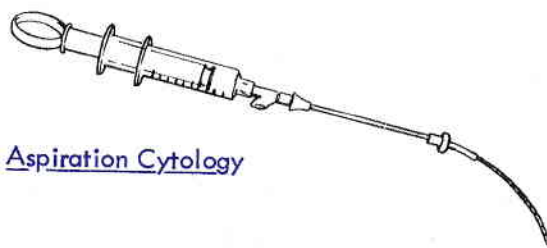
Endometrial Biopsy



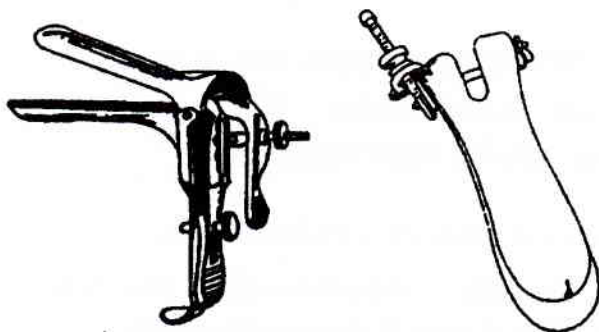
Vabra curette



Aspiration Cytology



Graves vaginal speculum



Apple Curettage

Indications

	Diagnostic	Therapeutic
1. Obstetrics		- Evacuation in abortion - Hge → . Postabortive . 2 ^{ry} Postpartum
2. Bleeding	- Organic? - Functional?	- Dysfunctional uterine Bleeding (DUB)
3. Amenorrhea	Hormonal status	- Ashermann syndrome
4. Contraception		- Missed IUD
5. Infertility	PEB → ovulation	
6. Infection	TB or B	
7. Neoplasm	cervix or uterus	- DUB - Uterine polyps / hyperplasia

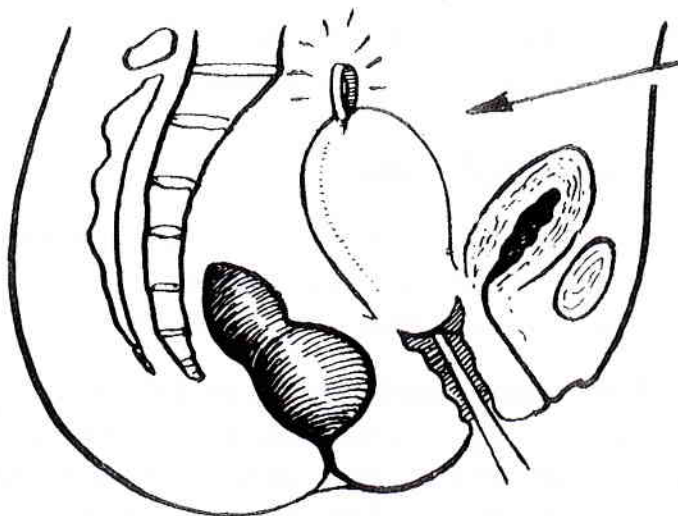
Types

- ➔ **Sharp / Blunt** (used if soft uterus) → single / double ended
 - Biopsy** → Novak
 - Pipelle** → small, used without anesthesia
- ➔ **Suction** ⇔ **Carmen** or **Vabra** aspirator (by -ve pr e.g. in VM)
 - Fundal** → to reach far areas near cornu
 - Flushing** → with warm antiseptic solution
 - Fractional** → cx & uterus (6 or 2 biopsies)

Technique of D&C 🧠preparation.....then

- Gradual dilatation: Start with a small Hegar No → hold it like a pencil
 - Introduce till resistance of internal os is overcome !
 - Leave for ½ min → remove & repeat with a larger one
- Curettage: use sharp or blunt curette (ring forceps for polypectomy)
 - Curette fundus, lateral, ant., post. walls (from above downwards)
 - Stop on feeling gritty sensation (as *basal* endometrium is reached)
 - Send specimen for histopathology (formaline 4% or saline)

Perforation of the Uterus



☞ Complications of D&CΦΦΦΦ.....

1. Anesthetic complications

2. Injury

▶ Cervical tears

- Especially if rapid, forcible dilatation
- ttt → interrupted sutures → vag packing → bilat I.I.A. ligation ± TAH

▶ Patulous os (if excessive dilatation) → habitual abortion

▶ Perforation

- Pdf . uterus → ❶ soft ❷ friable (*preg-infect-malig*) ❸ displaced (RVF)
 . Doctor → inexperience (excessive force or wrong direction) ✓✓
 during → sounding, dilatation, curetting

Perforation may be

- *Post.* → Douglas pouch
- *Ant.* → uterovesical pouch
- *Laterally* → broad ligament (extraperitoneal)...more serious

Diagnosis

- ❑ Unusual excessive bleeding
- ❑ Instrument is introduced to a length > uterine sound
- ❑ Appearance of omentum or intestine in the vagina
- ❑ Later on → bleeding (2^{ty} PPHge), infection

Treatment

1- *PROPHYLAXIS* → curettage guided by U/S in difficult cases

2- *CONSERVATIVE* (if bleeding is slight)

- Discontinue the procedure ☹
- Keep the patient under observation + antibiotics
- Special care in next pregnancy (rupture uterus)

3- *SURGICAL* (if bleeding is worsening)

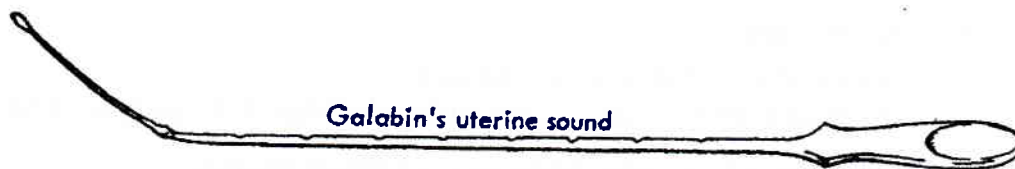
- Small perforation: repair (may be done by laparoscopy)
- Large perforation; esp if MP → hysterectomy
- Exploration of intestine: repair if injured (v. imp)

3. Infection → prophylaxis by proper sterilization & antibiotics

4. Shock → . Hemorrhagic (perforation, retained products, 2^{ty} hge)
 . Neurogenic (if without anesthesia)

5. Incomplete evacuation → inf & hge: re-evacuation is done

6. Later on → Ashermann syndrome if over curetted



Uterine sound

Use

Introduce inside the cervix till 1st resistance is felt → length of cervical canal
Then push till 2nd resistance is felt → length of the uterine cavity

Indications

- 1) To measure length of cervix for elongation
e.g. prolapse / congenital elongation
 - To measure the length of uterus before IUD insertion or D&C
 - Measure the uterine index (normal = > 1 or 0.75)

$$\frac{\text{Length of uterus} - \text{length of cervix}}{\text{Length of cervix} \times 2}$$

- 2) To know uterine axis (AVF or RVF)
- 3) Diagnosis of cervical stenosis (Pin hole os)
- 4) Detection of retained IUCD or foreign body
 - Detection of tumors or polyps inside uterus
 - Differentiate between uterine & cervical polyps
 - Differentiate between chronic inversion & uterine polyp
- 5) Click test, Clark test, Rock test

Complications

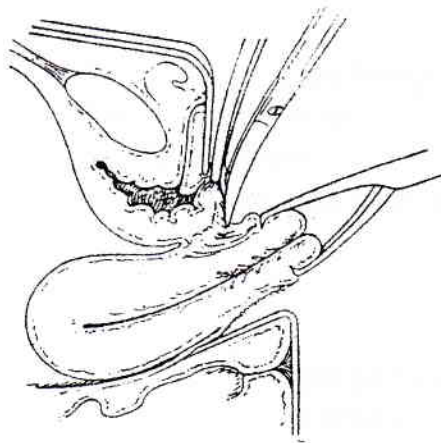
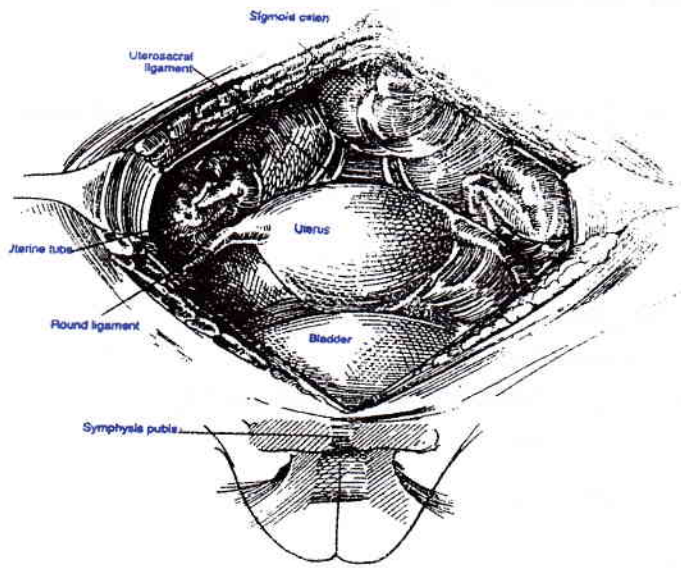
- Infection
- Perforation
- Disturbance of possible pregnancy

Indications of vaginal pack

- Postoperative hemorrhage after operations on vagina or cervix
- To reposit prolapse → promote healing of trophic ulcers
- In some cases of extensive vaginal tears after delivery
- After repair of cervical lacerations
- Bleeding in cases of cervical cancer

Indications of uterine pack

- Some cases of atonic postpartum hemorrhage
- After correction of acute inversion
- Placenta previa if bleeding occurs from LUS after labor



vaginal hysterectomy

Hysterectomy

Indications & types: ΦΦ

Gynecologic	Obstetric (hge)
* <u>Congenital</u> ≈ cervical atresia * <u>Traumatic</u> ≈ severe bleeding in myomectomy * <u>Inflammatory</u> ≈ PID in old age * <u>Neoplastic</u> . <i>Benign</i> → FIBROID / ov swelling > 45yr . <i>Malignancy</i> → of genital tract * <u>Vascular</u> ≈ DUB * <u>Miscellaneous</u> ≈ EØ / Inversion / Prolapse	* <u>Uncontrollable PPhge.</u> ✓ - Atonic - Rupture ut. (esp. if old pt., MP) * <u>APHge</u> - Placenta accreta - Couvelaire uterus (accidental hge.) * <u>Bleeding in early pregnancy</u> - Very severe postabortive sepsis - Vesicular mole (if old pt., MP) - Very rarely in ectopic ?! ☹

1) Abdominal hysterectomy

↪ In gynecology

1-Extrafascial ± BSO

- Total hysterectomy.....both body & cx
- Subtotal (supra-cervical)....only body is removed

2-Extended hysterectomy

- TAH + upper inch of vagina + medial portions of cardinal lig.
- For ttt of microinvasive cervical carcinoma (stage IA₂)

3-Radical hysterectomy (*Wertheime*)

- TAH + BSO
- The whole parametrium + all pelvic LN

4-Ultra-radical hysterectomy (*pelvic exenteration*)

↪ In obstetrics

- * Supra-vaginal hysterectomy (if done peripartum...birth canal)
- * Cesarean hysterectomy (C.S. followed by hyst.)....severe PPHge
- * Hysterectomy in toto (as in septic abortion)

2) Vaginal hysterectomy; for

- * Uterine prolapse (in old age)
- * Uterine size < 12 wks (DUB / small fibroid / adenomyosis)

3) Laparoscopic assisted vaginal hysterectomy

- * Laparoscope is used to free the *round, infundibulopelvic, broad ligaments*
- * Continue the steps vaginally

Complications

ΦΦ

□ Intra-operative

- Anesthetic complications
- Primary hemorrhage
- Injury → bladder, ureter, intestine

□ Post-operative

- 1st day → reactionary hge, fever
- 2nd day → abdominal distension
- 3rd day → urine retention, UTI
- 5th day → DVT & pulmonary embolism

□ Later on

- Wound ⇔ infection, burst abdomen, incisional hernia, keloid
- Vault ⇔ vault prolapse, infection → granuloma → dyspareunia
- Intra-abdominal adhesions ⇔ intestinal obstruction
- Injury of ureter ⇔ urinary fistula
- No ovary ⇔ menopausal symptoms
- No uterus ⇔ psychological symptoms (depression)

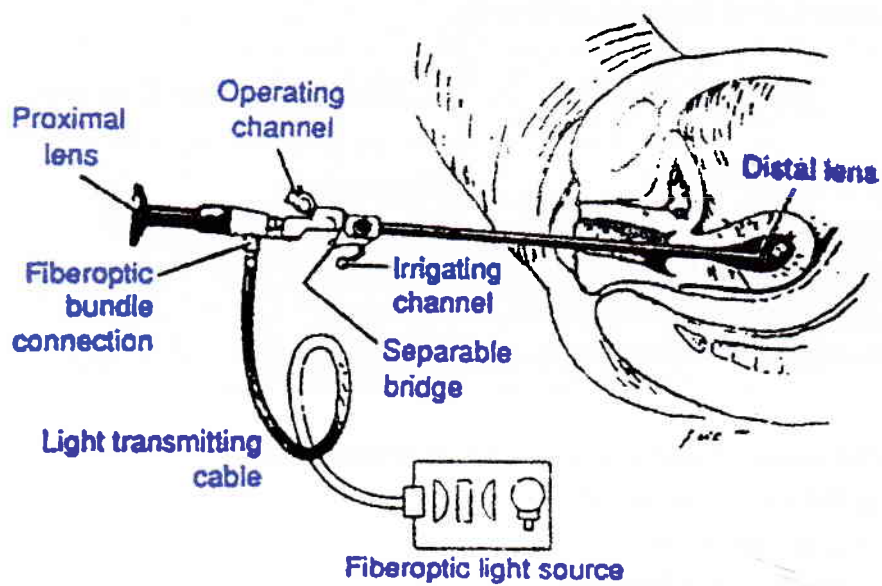
- **Mortality** → (1/1000): hge, DVT, septicemia

Total hysterectomy	Sub-total hysterectomy
• NO cervix - No risk of stump carcinoma - No chronic discharge (from cervicitis) - No hematoma (good drainage of blood)	• Cervix retained; more risk to - - -
• Technique.....difficult & longer	• Technique.....easier & shorter
• More risk to - Injure bladder, ureter (d.t. dissection) - Vault prolapse (as cx lig are removed) - Pelvic infection (vagina is opened) - Dyspareunia (no cx secretions)	• Less risk to - - - -

☆ **Advantage of VH** ⇔ no abdominal scar + short hospital stay

☆ **Disadvantage of VH** ⇔ unsuitable if

- Large uterine size
- Presence of adhesions



Hysteroscopy

► **Definition** ⇨ fibro-optic endoscopic visualization of the uterine cavity

- **Types** ⇨
- . Panoramic.....x 1
 - . Contact.....x 20
 - . Microhysteroscopy....x 60-150

► **Indications** ΦΦ

	Diagnostic	Operative
1. Congenital	- Septate uterus - Patulous internal os	- Septoplasty (e.g. for habitual abortion)
2. Bleeding	- Dysfunctional ut. bleeding	- Endometrial ablation
3. Amenorrhea	- Asherman's (synechiae)	- Adhesiolysis
4. Contraception	- Missed IUD - Sterilization	- Removal - Tubal occlusion
5. Infertility	- Suspected uterine factor	- IUI, balloon dilatation
6. Neoplasm	- Polyps, fibroids - Exploration of uterus	- Resection (better than D&C)

► **Contraindications**

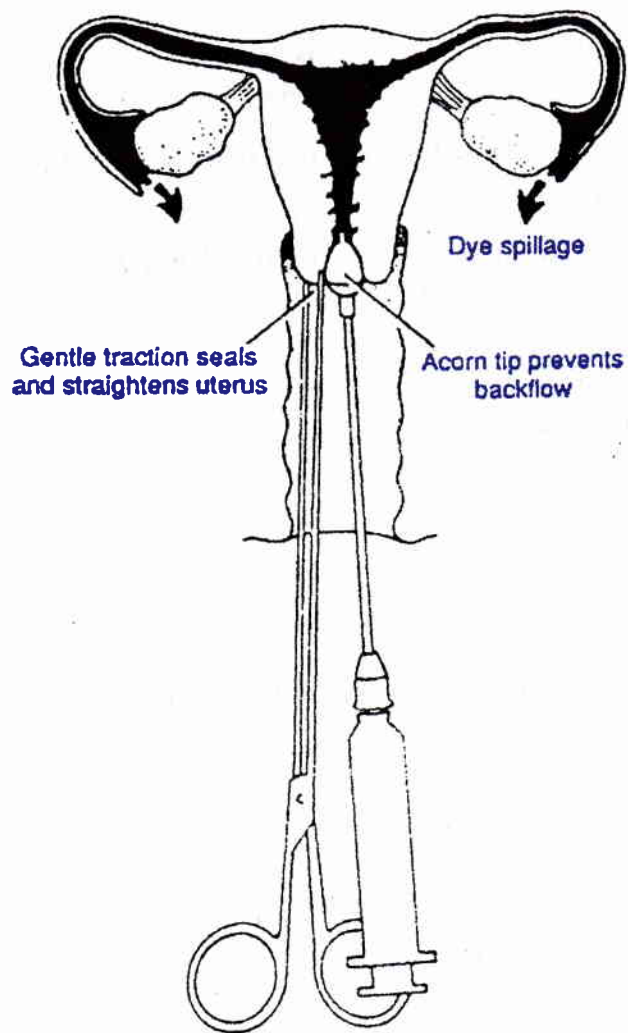
- Amenorrhea of unknown nature ⇨ pregnant ?
- Bleeding of unknown nature ⇨ cancer ?
- PID ⇨ spread

► **Complications**

- Anesthesia
- Hemorrhage, infection
- Injury (uterine perforation)
- Esp ⇨ complications of distending media (glycine) → volume overload

► **Endometrial ablation**

- **Thermal ablation**
 - . Microwave endometrial ablation
 - . Recently done by a balloon
- **Laser ablation** (YAG laser)
- **Cryo-ablation** (- 40°C using CO₂ or NO)
- **Endometrial resection** (resectoscope)



Hysterosalpingography

► **Timing**4 – 7 days after menses (why?)

► **Method**

- No need for anesthesia (give 2 profenid supp. ½ hour before)
- A radiopaque material is injected (5–10 ml) through the cervix
- Then X-ray is taken, dye used is either



➡ **Lipidol** (40% organic iodine in poppy-seed oil)

- . After 24 hrs another film is taken to denote any spillage.
- . It gives better *diagnostic & therapeutic* effect but can cause embolization

➡ **Urografin** (40% iodine in water) ✓✓

- . Here the 2nd film is taken ½-1 hour later.
- . It gives less diagnostic & therapeutic effect
- . But it is less liable to embolism (water soluble)

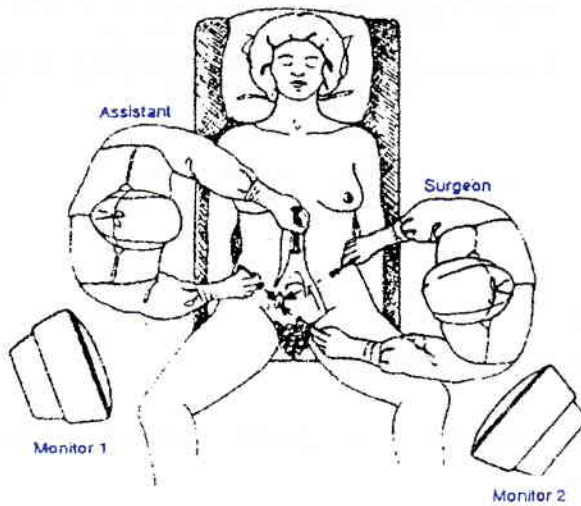
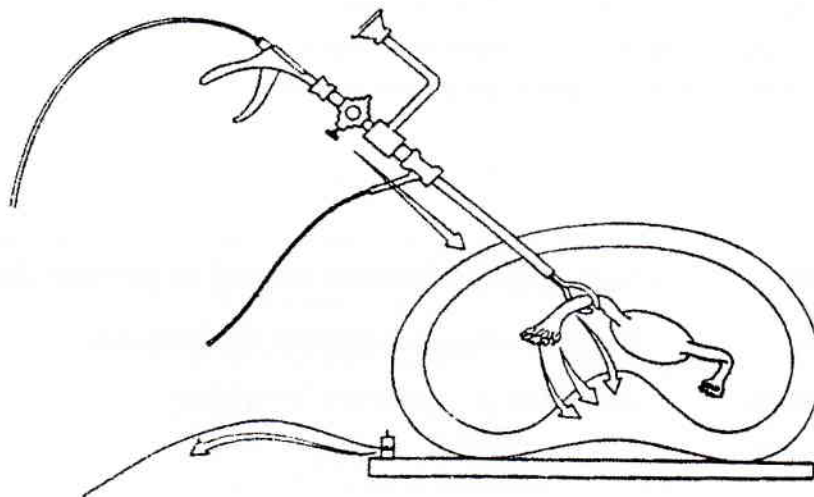
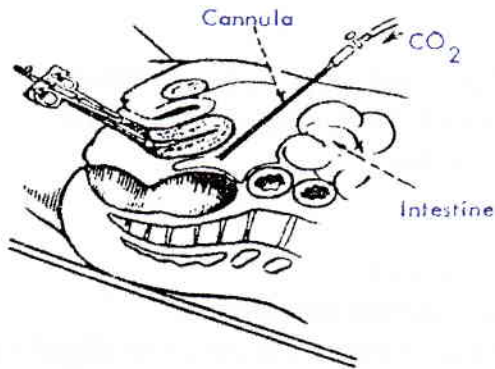
► **Indications** ΦΦ

1. Congenital	- Septate uterus, Patulous internal os (habitual abortion)
2. Bleeding	- Polyps, submucous fibroid, adenomyosis
3. Amenorrhea	- Asherman's syndrome (synechiae)
4. Contraception	- Missed IUCD
5. Infertility	- Suspected tubal ✓✓✓✓✓✓✓✓ or uterine factor
6. Neoplasm	- Assessment of tube after surgery e.g. myomectomy,

► **Contraindications** ⇔ as general + sensitivity to iodine

► **Complications**

- Shock (neurogenic)
- Ascending infection → salpingitis, PID
- Dye complications
 - Oil embolism → avoided by (urografin + HSG 4-7 days after menses)
 - Oil granuloma
 - Oil (I₂) hypersensitivity



Laparoscopy

► Technique

- **Veress** needle is inserted through a small sub-umbilical incision
- Insufflation of CO₂ into the abdomen (**pneumoperitoneum**)
- Introduce the **laparoscope**
- **Second punctures** at both iliac fossa for assisting instruments
- **Methylene blue** is injected through the cx to → show tubal patency

► Indications

ΦΦ

	1- Diagnostic	2- Therapeutic
1. Infertility	- Suspected tubal factor - Endometriosis - PCO - Unexplained infertility	- Peritubal adhesiolysis - Cauterization - Ovarian drilling - Ovum pickup for IVF
2. Neoplasm	- Subserous fibroids - Adnexal swellings	- Myomectomy - Ovarian cystectomy
3. Contraception	- Missed IUCD - Sterilization	- Removal - Tubal ligation
4. Amenorrhea	- esp 1^{ry} amenorrhea	- take ovarian biopsy
5. Pain	- Chronic pelvic pain - Urinary incontinence	- LUNA - Laparoscopic sling
6. Congenital	- To differentiate <i>septate</i> from <i>bicornuate</i> uterus	- Mullerian agenesis (Vachetti operation)
7. Obstetric	- Diagnosis, ttt of ectopic (salpingostomy, salpingectomy) - Ovarian swellings with pregnancy (in the 1st trimester)	

► Complications

- 1] Injury (esp during trial of entry)
 - *Vascular*.....inferior epigastric vessels or pelvic vessels
 - *Visceral*.....intestine, colon, bladder, uterus
 - *Thermal*.....if diathermy is used
- 2] Pneumoperitoneum ⇔ gas embolism, chest compression

Notes

~ Laser therapy ~

► Definition

LASER = **L**ight **A**mplification by **S**timulated **E**mission of **R**adiation
It is a form of electromagnetic energy. Control of nature, depth, time of application can be lead to

- Cutting
- Coagulation
- Vaporization

► Types of laser

- CO₂ (carbon dioxide laser)
- Argon laser
- YAG (Yttrium aluminium garnet laser)
- KTP (Potassium tetanyl phosphate laser)

► Advantages

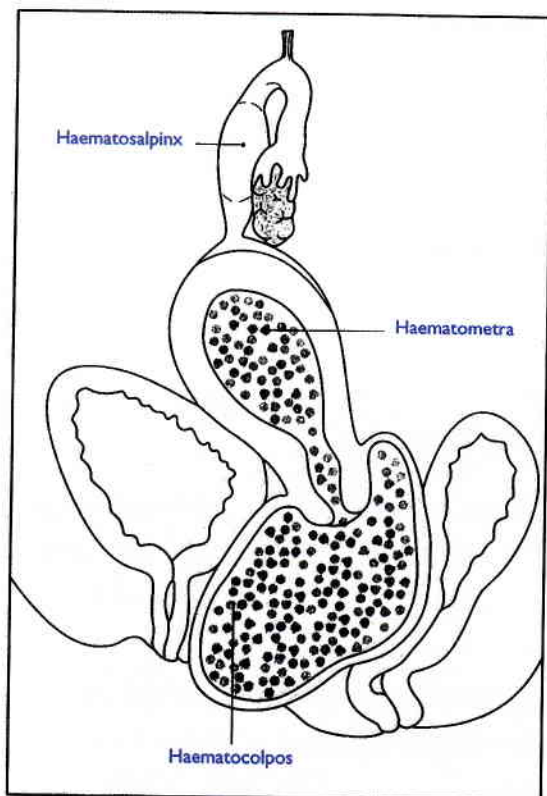
- Rapid healing
- Less hemorrhage or infection
- Less fibrosis or adhesions with surroundings

► Disadvantages

- Expensive (special instruments)
- Needs special training
- Needs precautions to protect the medical staff

► Indications Φ

1. Congenital	excision of <i>uterine</i> or <i>vaginal</i> septum
2. Infertility	- <i>Tube</i>.....salpingectomy....salpingolysis.....salpingotomy - <i>Peritoneum</i>.....ablation of endometrial implants - <i>Ovary</i>.....drilling of PCO
3. Neoplasm	- <i>Uterus</i>.....polypectomy.....endometrial ablation - <i>Ovary</i>.....ovarian cystectomy or adenectomy - <i>Intraepithelial lesions</i>..... CIN, VIN, VAIN



Haematocolpos due to imperforate hymen septum.

Pelviabdominal mass ΦΦ

How to diagnose

- Can feel the upper but not the lower edge
- Moves from side to side
- Dullness over mass, flanks resonant

Common swellings (F)

Fetus (pregnancy), Fibroid

Fat (obesity), Flatulence or Fecal mass, Full bladder

Fluid (ascites or ovarian cyst)

Differential diagnosis

1. Uterine

- Pregnancy
- Tumors → fibroid, sarcoma
- Haematometra
- Pyometra

CCC → central, symmetrical or asymmetrical, solid or cystic,
On moving the mass → transmitted to cervix

2. Ovarian (neoplastic or non-neoplastic)

CCC → unilateral or bilateral, lateral or central (if very large), solid or cystic
Swelling is separable from cx & uterus, its movement → not transmitted to cx

3. Broad ligament

- Cyst
- Haematoma
- Parametritis, abscess
- Tumor → myoma

CCC → limited mobility, lateral to uterus → displaces uterus to one side

4. Tubal

- Haematosalpinx
- Hydrosalpinx, pyosalpinx
- Tumors of tube

CCC → lateral, above inguinal ligament, adnexal swelling

5. Vaginal

- Haematocolpos

CCC → Cystic with uterus on top, felt by P/R examination
Cause is found → imperforate hymen, transverse septum

6. Douglas pouch

- Pelvic haematocoele
- Pelvic abscess
- Encysted TB peritonitis

CCC → ill-defined swelling pushing uterus forwards

7. Others

- Full bladder / Hydronephrosis
- Mesenteric cyst / Pancreatic cyst
- Retroperitoneal mass
- Fecal mass / Flatulence

Pelviabdominal mass + Amenorrhea

- Pregnancy / Pseudocyesis
- Uterine swelling → Haematometra / Pyometra
- Cryptomenorrhea (Haematocolpos)
- Inflammatory → encysted TB peritonitis
- Ovarian tumors if → malignant cachexia, destroying both ovaries

Pelviabdominal mass + Abnormal bleeding

- Complications of pregnancy
- Uterine tumors → fibroid or sarcoma
- Inflammatory → large tubo-ovarian complex
- Ovarian tumors if → pelvic congestion, secondaries to uterus

Pelviabdominal mass + Pain

- Complications of pregnancy
- Complications in any mass
- Cryptomenorrhea
- Inflammatory → PID, pyometra

Causes of symmetrically enlarged uterus

- ◆ Pregnancy
- ◆ Subinvolution
- ◆ Haematometra, pyometra
- ◆ Tumors
 - Single submucous or interstitial fibroids
 - Diffuse adenomyosis / Myohyperplasia
 - Endometrial hyperplasia

Adnexal mass ΦΦ

- **Ovary**
 - Neoplastic & non-neoplastic ovarian swellings
 - Ovarian endometriosis
 - Ovarian pregnancy
- **Tube**
 - Ectopic pregnancy
 - Hydrosalpinx, pyosalpinx
 - Tumors
- **Broad ligament**
 - Broad ligamentary fibroid
 - Paraovarian cysts
- **Uterus**
 - Pregnancy in a bicornuate horn
 - Pedunculated subserous fibroid
- **Others**
 - Tumors of sigmoid colon
 - Diverticular mass
 - Pelvic kidney
 - Retro-peritoneal swellings

* **Causes of hemorrhage in the ovary**

- Ovarian endometriosis
- Ovarian pregnancy
- Complication of ovarian neoplasms
- OHSS

Tubal swelling

- Hydrosalpinx / Pyosalpinx
- Tubal pregnancy
- Tubal neoplasm

* **Causes of Haematosalpinx**

- Tubal endometriosis
- Tubal pregnancy
- Complication of tubal neoplasms
- Torsion of hydrosalpinx
- Cryptomenorrhea

D.D. of vulva ΦΦ



	-- ① Ulcers --	-- ② Swellings -- (solid or cystic)
1. Congenital		Hypertrophy of clitoris
2. Traumatic	Infections of episiotomy	Hematoma
3. Inflammatory	* STD (S, soft sore, herpetic) * Non-STD's (TB, B)	- Vulvo-vaginitis - Bartholin abscess
4. Neoplastic	. Squamous cell carcinoma . Basal cell cr (rodent ulcer)	Benign / Malignant
5. Miscellaneous	- Aphthous ulcers - Behcet syndrome	- V.veins, elephantiasis - Retention dermoid

Other swellings which may appear at the vulva

* Inguinal region

- Inguinal hernia
- Testis in Testicular Feminization Syndrome
- Hydrocele of canal of Nuck

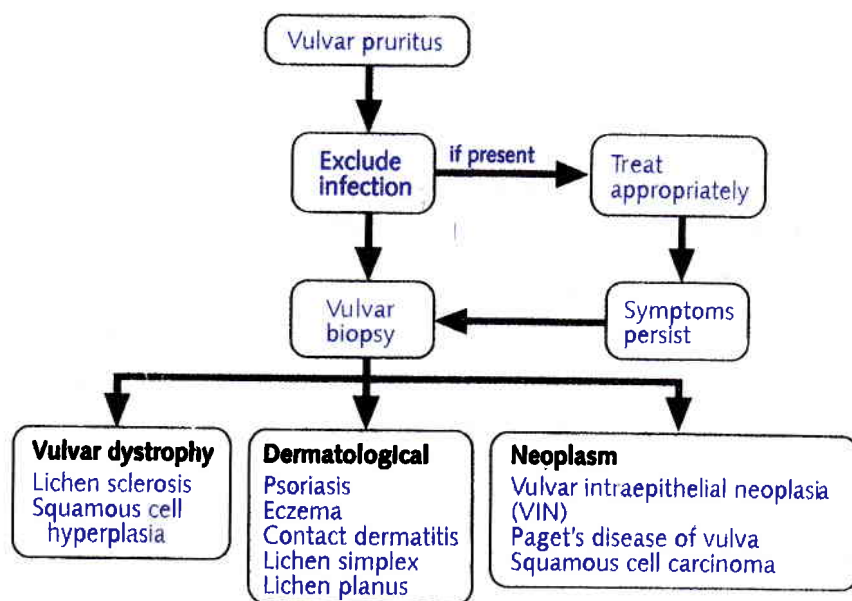
* Genital tract

- Uterine or vaginal prolapse / inversion
- Tumors & polyps protruding from vulva

* Urethra

- Urethral caruncle (small asymptomatic swelling protruding from the posterior urethral wall (covered by transitional epith[□])
- Urethral prolapse
- Urethral diverticulum
- Paraurethral (Skene's) cyst

Algorithm for vulvar pruritus.



Pruritis Vulvae

Definition → strong desire to scratch the vulva

Etiology (may be idiopathic) or

General disease	Skin disease	Local (90%)
Liver.....cirrhosis, jaundice	. Eczema & urticaria	<u>V</u> ulvitis
Kidney.....chronic renal failure	. Parasitic infestations →	<u>V</u> aginitis →
Endocrine.....DM, ↑ or ↓ thyroid	pediculosis, oxyuris	vaginal discharge
Blood.....lymphoma & leukemia	. Insect bites	is irritating (TV
Autoimmune.....achlorohydria	. Vitamin def. → vit:-	or Candida A.)
Menopause.....senile pruritis [□]	A, B ₂ , B ₁₂ , folic acid	<u>V</u> ulval dystrophy
Psychological.....scratch habit [□]	Iron def. anemia	<u>V</u> ulval neoplasia

Diagnosis

- History
- Examination → of other affected areas
- Investigation

Laboratory - CBC

- Urine & stool analysis
- Serum iron, folate, vit B₁₂

Organ function tests - Fasting & 1 hour PP sugar level

- Liver, renal, thyroid function test

Local - C&S for vaginal discharge

- Colposcopy ± biopsy

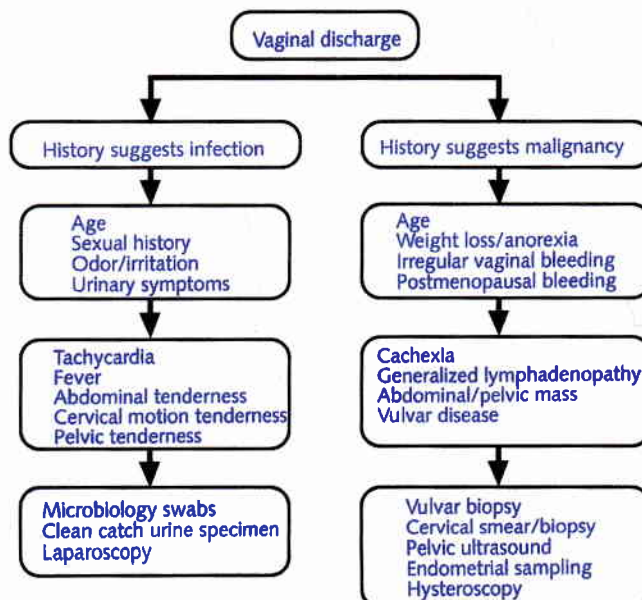
Treatment

- ▶ Of the cause
- ▶ General
 - Sedatives → phenobarbitone at night
 - Antihistaminics
- ▶ Local
 - Cotton loose underwears + local cleanliness
 - Antipruritics (hydrocortisone + antihistaminic + local anesthetic)[□]
- ▶ Resistant cases
 - Estrogen for postmenopausal women
 - Intradermal injection of triamcinolone
 - For resistant pain → subcutaneous alcohol injection
 - Ball's operation[□] → circular incision around vulva (to cut nerves)

Investigation	Cause of discharge
Microbiologic swabs	Wet mount
	<i>Candida albicans</i>
	<i>Trichomonas vaginalis</i>
	Bacterial vaginosis
	Endocervical/urethral swab
	<i>Chlamydia trachomatis</i>
	<i>Neisseria gonorrhoeae</i>
Clean catch urine specimen	Infection
Cervical cytology	Cervical disease
Endometrial sampling/ hysteroscopy	Uterine disease
Pelvic ultrasound	Pelvic mass
Laparoscopy	PID
	Pelvic malignancy

Work-up of vaginal discharge.

Algorithm for vaginal discharge.



D.D. of vagina

Vaginal adenosis

- ▶ Pdf → exposure to DES (Diethylstilboestrol) in utero → persistence of columnar epithelium ± glands in the vaginal mucosa
- ▶ Pathology → red, velvety, easy bleeding areas which doesn't stain brown with Schiller I₂
- ▶ Complication → adenocarcinoma

Vaginal cysts

→ Cystic swellings

- Gartner cyst
- Hymeneal cyst
- Mullerian cysts
- Urethra → cyst of skene tubules, urethral diverticulum & caruncle
- Implantation dermoid cyst
- Endometriotic cysts
- Vaginitis emphysematosa → d.t. non-specific vaginitis, TV

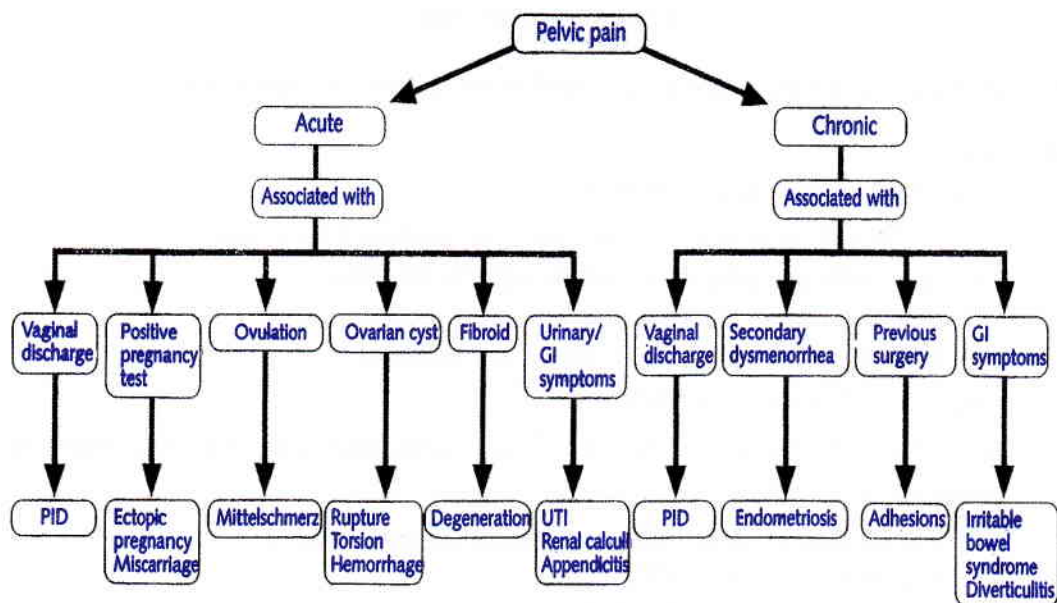
→ Solid swellings ⇔ Fibromyoma, condyloma accuminata, B-polyps

Vaginal cytology

Definition ⇔ evaluation of the cells found in the posterior vaginal fornix

Indications ^α

- Detection of hormonal status
 - Early follicular phase → parabasal & intermediate cells
 - Late follicular phase → mature superficial cells
 - Luteal phase → intermediate cellsovulation
 - Menopause → atrophicbasal & parabasal
- Diagnosis of vaginal infection
- Detection of amniotic fluid in PROM (cells stained by Nile blue sulphate)
- Exfoliative cytology
 - For ⇔ diagnosis & follow up of genital tract tumors
 - Sensitivity ⇔ . Cx (95%)
 - . Endom.(50%)
 - . Tubes (20%)
 - . Ovary (10%)



Algorithm for pelvic pain.

Chronic pelvic pain

Definition ⇒ Pain (an annoying feeling) lasting > 6 months

Etiology ΦΦ

► Gynecologic

1. Cyclic pain
 - Dysmenorrhea (4 types)
 - Premenstrual tension
 - Cryptomenorrhea e.g. imperforate hymen.
2. Acyclic pain
 - Causes of pelvic congestion 
 - IUCD
 - Pelvic adhesions (responsible for about 40% of cases)

► Non-gynecologic

- . Urinary → urethritis, cystitis, stones, malignancy
- . Intestine → chronic appendicitis, Crohn's disease, tumors
- . Colon → Ulcerative colitis, diverticulitis, irritable bowel, constipation
- . Musculoskeletal → diseases of muscle, disc prolapse
- . Systemic diseases → SLE

► Psychogenic / idiopathic

Diagnosis

1- History ccc of pain

<i>Onset</i> → acute or chronic	<i>Duration</i> → continuous or intermittent
<i>Site</i> → suprapubic or iliac fossa	<i>Localization</i> → localized or radiating
<i>Nature</i> → colicky or aching	<i>Relation to menses</i> → cyclic or acyclic
<i>Degree</i> → mild or severe	<i>Associated symptoms</i> → Gyn/GIT/urinary

2- Physical examination

3- Investigations

- Laboratory.....CBC, ESR and urine analysis
- U/S, CT, MRI.....pelvic masses or malignancy
- Doppler.....pelvic vein flow
- X-Ray.....plain on bone / IVP / Barium enema
- Laparoscopy.....(for unexplained cases) may reveal endometriosis, pelvic adhesions, or varicosity in the broad ligament

Treatment → of cause

Notes

Pelvic Congestion ☹ ☹

(Pelvic pain syndrome = PPS)

Clinical picture

- More in MP, emotionally unstable women
- Continuous dull aching pain which ↑ premenstrually
- Associating symptoms
 - Deep dyspareunia
 - Discharge
 - Dysmenorrhea
 - Disturbance in menstruation (Menorrhagia)

Etiology

Pelvic congestion of uterus & increased varicosity of the broad ligament. The true cause is unknown, m.b.d.t:

1. Chronic inflammation
2. Excessive E stimulation
3. Presence of pelvic pathology e.g. fibroid
4. Chronic constipation, coitus interruptus
5. Psychological stress

Investigations

- **U/S** → enlarged uterus, thick endometrium, cystic ovaries
- **Doppler** → pelvic varicosity
- **LAPAROSCOPY** → for patients with unexplained chronic pelvic pain → dilated veins may be seen in the broad ligament

Treatment

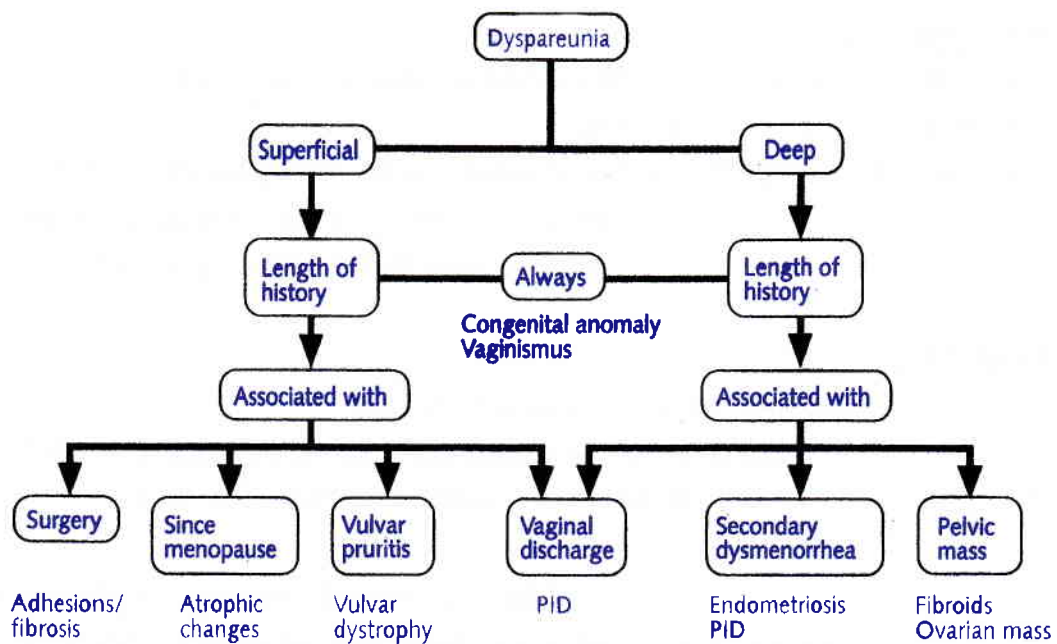
1. *Medical* → . Inhibition of ovulation (COC)
 - . Large doses progestogens (provera 30 mg /d for 6 m)
2. *Surgical* → TAH & BSO (in old, completed their families)

The residual ovary syndrome

Chronic lower abdominal pain, with or without dyspareunia

After leaving one or both ovaries after hysterectomy

Due to an enlarged ovary containing a cyst surrounded by adhesions



Algorithm for dyspareunia.

Acute pelvic pain ☺

- **Inflammatory**.....PID, UTI, appendicitis
- **Rupture**.....uterus, tube, ovarian cyst
- **Torsion**.....fibroid, ovarian cyst, tube, ovary
- **Degeneration**.....fibroid
- **Distension of viscera**....pyometra, hge in a cyst, acute urinary retention
- **Vascular**.....mesenteric thrombosis, sickle cell crises, hge in a cyst
- **Obstruction**..... intestinal, ureteric

Low backache ☺

1- Gynecological causes

- Chronic cervicitis → along uterosacral ligaments → sacralgia
- Prolapse and RVF
- Pelvic congestion due to any cause
- Tumors → infiltration of uterosacral lig by malignancy or endometriosis

2- Non-gynecological causes

- Urinary tract → infection, stone, tumor, back pressure
- GIT → infection or tumors of rectum
- Musculoskeletal lesions of the back

3- Psychogenic pain

4- Idiopathic pain

Dyspareunia ☺

Definition → Pain or difficulty during intercourse

Classification

- ▶ Superficial → pain during penetration.....infections
- ▶ Deep → pain after complete penetration.....EØ, PID

Also 1^{ry} → *psychological*, usually at the beginning of marital life

2^{ry} → to a *pathology*, occurs yrs later on

Etiology

Vulva	Atrophy, painful scar, inflammation, tumors
Vagina	Vaginismus, atrophy, inflammation, tumors
Cervix	Inflammation, elongated, polyp, ulcer, tumor
Uterus	RVF, parametritis
Tubes	Ectopic pregnancy, PID
Ovaries	Inflammation, prolapse, tumors
Douglas pouch	Ov. mass, fibroid, hematocele, pelvic abscess
Endometriosis	And any other cause of pelvic congestion
Urethra	Inflammation, caruncle
Rectum	Piles, fissures

Notes

Radiotherapy

[1] External irradiation (Teletherapy)

Old → deep X-ray → more skin affection & less tissue penetration

Now → Supervoltage pumps → linear accelerator, Betatron, Cobalt 60

✧ *Dose* → 5000 R (divided on 5 days for 5 weeks)

✧ *Area* → inverted pear shaped area (to cover cervix, lower uterus, upper vagina, parametrium) but flattened anteroposteriorly (↓ affection of bladder & rectum)

[2] Internal irradiation (Brachytherapy)

✧ Types

Intracavitary → packing of uterus & vaginal vault by radium (Ra^{226}) or cesium (Cs^{137})

Interstitial → radioactive needle penetrates the tumor tissue

✧ Method of application

	Paris	Stockholm	Manchester
Dose	Small (66.6 mg)	Large (100 mg)	Calculated
Duration	1 week	1d. → 1wk rest → 1d.	3d. → 1wk. rest → 3d

✧ Dosage calculation

* *Older method:*

Point A (2 cm above lateral fornix & 2 cm lateral to cervical canal) → should receive 8000 R

Point B (2 cm above lateral fornix & 5cm lateral to cervical canal) → should receive 5000 R

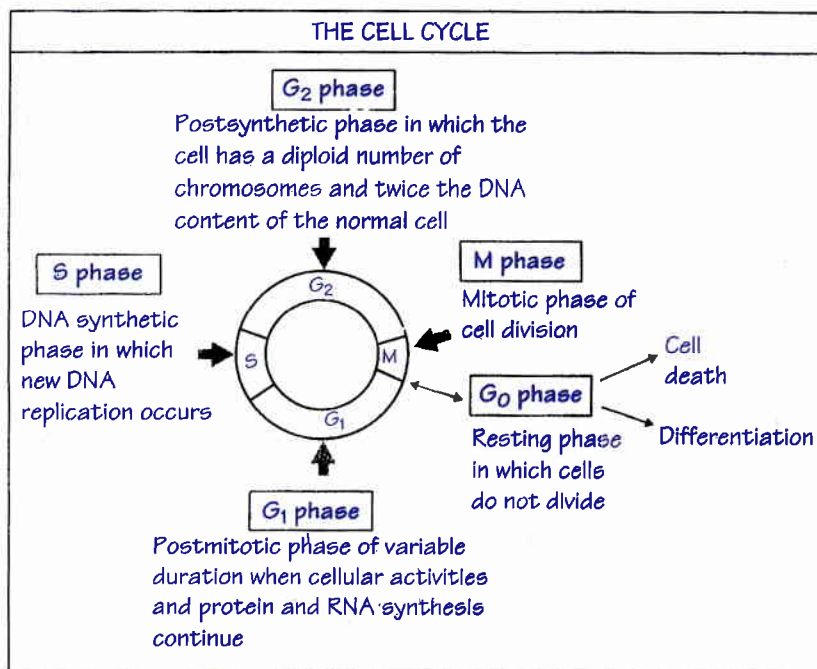
* *Modern method:*

By computerized dosimetry

✧ Technique of brachytherapy

1. GEA in the lithotomy position
2. Uterine sound → for proper assessment of uterine cavity
3. Cervix is dilated → to allow insertion of 1 intrauterine 2 vaginal ovoid applicator by a colpostat (to keep them at their position)
4. Vagina is packed with gauze
5. Urinary self-retaining catheter is left
6. X-ray → check the proper position of applicators
7. Applicators are removed after 24-72 hours

NB → **After-loading technique:** For doctor safety, applicators are loaded automatically after proper insertion of empty applicators. Cathetron is a special device which can deliver radio-cobalt safely in a few minutes



Chemotherapy

Cell cycle

'M' phase	'G ₁ ' phase (50%)
'S' phase (30%)	'G ₂ ' phase (20%)

Drugs are either 'phase' specific or non-specific

Types of cells are ❶ Renewing ❷ Expanding ❸ Static

Chemotherapeutic drugs

	Drugs	Actions	Side effects [⌘] [⌘]
Alkylating agents	Cyclophosphamide Melphalan (alckeran)	Phase non-specific	Hemorrhagic cystitis [⌘]
Antimetabolites	Methotrexate 5-Fluorouracil	Act on 'S' phase → ↓metabolites for DNA	Ulcers of m. memb Pseudomemb. colitis
Antibiotics	Actinomycin D Bleomycin Adriamycin	Act on 'S' phase → inhibit DNA formation	Hepatotoxic Lung fibrosis [⌘] Cardiotoxic [⌘]
Plant alkaloids	Vincristine (oncovine) Etoposide Taxol ✓, Topotecan ✓	Act on 'M' phase Inhibit mitosis	Neurotoxic [⌘]
Platinum compounds	Cis-platinum Carbo-platinum	Phase non-specific	Nephrotoxic [⌘]

General side effects

- Bone marrow depression
- GIT irritation → nausea & vomiting
- Skin & hair affection

⊕ Therefore, before giving the drugs.....CBC, Liver & Renal function tests

⊕ To decrease side effects → drugs are given in courses (about 6 courses, 4 weeks in between) to allow renewal of normal cells (however, the tumor may regrow)

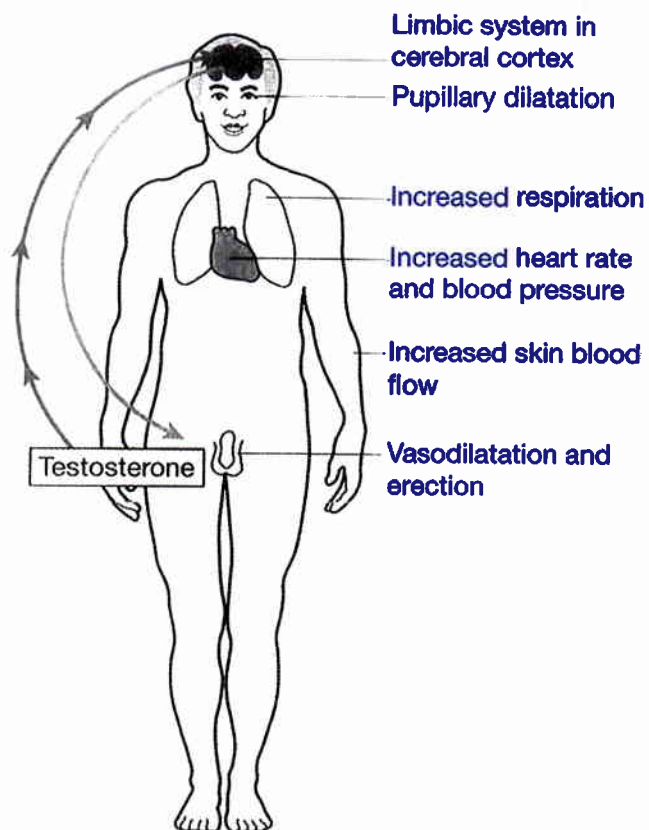
Common combination chemotherapy

- **BEP**.....Bleomycin, Etoposide, cis-Platinum ⇌ for germ cell tumors
 - **CAP**.....Cyclophosphamide, Adriamycin, cis-Platinum ⇌ for epith. tumors
 - **EMA-CO**.....**MAC** ⇌ for choriocarcinoma
 - **VAC**.....Vicristine, Actinomycin, Cyclophosphamide ⇌ for sarcoma botryoides
- ✓ **Methotrexate** ✓

Dose.....vial (50 mg/ m² surface area)....may be given oral

Action....anti-metabolite (folinic acid antagonist)...inhibit DNA synthesis

Antidote...folinic acid (rescue) 5 mg given every other day → ↓ side effects



Control of sexual activity.

Sexual disorders

(1) PHYSIOLOGY OF SEXUAL ACTIVITY

Stimulation of sexual excitement

⇒ Psychological stimulation ⇔ pre-coital petting neurotransmitters → (amphetamines & others) → euphoria

⇒ Physical stimulation by

- The 5 special senses (visual, auditory.....)
- Hugs & kisses
- Tactile stimulation of the nipple, clitoris

Physiological response (autonomic)

① **Excitement phase**the longest phase (could be easily interrupted)

▶ The vulva

* Contraction of

- Ischiocavernosus → engorgement of clitoris & vestibular bulb
- Bulbospongiosus → increased tone of vaginal introitus

* Increased secretions (lubrication)

- Sweat from labia minora sweat glands
- Mucus from Bartholin gland

▶ The vagina

* Increased transudation → more moist

* Increased distension (of the upper $\frac{2}{3}$)

* Special sense on stretching

▶ The uterus → pulled upward (aligns with the pelvic axis)

▶ The breasts → erected

② **Plateau phase**

- . It is the maintenance of excitement without reaching orgasm
- . Takes longer time in females > males
- . Ends by reaching a threshold level that triggers orgasm

③ **Orgasm (crescendo or climax)**....the shortest phase

- . Rhythmic contractions of the vaginal wall, pelvic floor
- . Dominating sense of pleasure, enjoyment & satisfaction
- . Ends by male ejaculation

④ **Resolution (postcoital) phase**....accompanied by

- . Marked body sweating
- . Complete relaxation & calmness

⑤ **Refractory period**to resume ejaculation: minutes to hours (only in males, as females have no ejaculation)

(2) FEMALE SEXUAL DYSFUNCTION

Etiology

► Organic

- *Gynecological disease* ⇔ as in dyspareunia
- *Local anatomy* ⇔ wide introitus / tight (d.t. FGM –circumcision–)
- *Chronic illness* affecting general health & libido ⇔ e.g. obesity

► Psychological & personal

- *Developmental factors*
 - Negative cultural attitudes toward sex
 - Traumatic sexual experience e.g. rape
 - Guilty complex e.g. after masturbation
- *Affective factors*
 - Performance anxiety d.t. excessive sexual demands by the husband
 - Poor self-esteem d.t. lack of physical attraction → depression
 - Fear of pregnancy or STD's
- *Interpersonal factors*
 - Poor communication between the couple
 - Different sexual preferences between the couple

Types

① Chronic pelvic congestion

② Dyspareunia

③ Vaginismus (the commonest cause of dyspareunia)

.Def ⇔ there is reflex spasm of the vaginal sphincter & levator ani-
on any attempt of sexual intercourse or P/V examination

.Types

- 1^{ry} → no local abnormality is found (psychological)
- 2^{ry} → it is due to painful coitus (pathology - a protective response)

.Treatment

- * Psychotherapy & sexual education
- * Gradual dilation of the vagina (1–2 times daily, each for 10-15 min)
- * Fenton operation → midline incision to be sutured transversely

④ Frigidity ⇔ females how lack orgasmic capacity (libido), ttt:

- * Education & explanation
- * Small doses of methyl testosterone ✓ (5 mg once daily) → ↑ libido

⑤ Anorgasmia ⇔ failure to achieve orgasm (5 – 48% in circumcised ♀)

- . Primary → those who never experienced orgasm
- . Secondary → transient (pregnancy), coital (only during IC)

(3) ABNORMAL SEXUAL DIFFERENTIATION

Types of sexual differentiation

1. **Genetic sex** → chromosomal sex = xx / xy
2. **Gonadal sex** → ovaries / testis
3. **Genital sex** → ♂ or ♀ external genitalia
4. **Hormonal sex** → phenotypic sex (2nd sexual ccc of ♂ or ♀)
5. **Gender role** (sex of rearing) → label given at birth
6. **Gender identity** → one's own feelings of sexuality

Classification

① Disorders of gonadal development

- True hermaphrodite

- . *Gonads* → both testicular & ovarian tissues are present
- . *External genitalia* → ambiguous

- Gonadal dysgenesis

* Turner

* Pure gonadal dysgenesis

- . *Gonads* → streak (fibrous bands)
- . *Karyotype* → 46xy (Swyer syndrome) or rarely 46 xx
- . *External & internal genitalia* → female (but infantile)

* Noonan syndrome (autosomal dominant)

- . *Karyotype* → 46xy or 46 xx
- . *Phenotype* → Turner-like (with ccc lesion → pulmonary stenosis)

② Disorders of fetal endocrinology e.g. Adreno-genital \$ (CAH) ✓✓

► Pathogenesis

- Adrenal gland fails to form cortisol from 17 α -OH progesterone
 - ↳ d.t. deficient **21-hydroxylase** or **11 β -hydroxylase**
- ↓ cortisol → ↑ ACTH → hyperplasia of adrenal cortex
 - ↳ ↑ production of androgens from 17 α -OH-P

► Types

1. Juvenile onset (salt losing) → ambiguous genitalia at labor + shock
 - . Virilization of female fetus (clitromegaly, fusion of labia)
 - . The uterus, tubes, vagina escape virilization but remain infantile
2. Adult (late) onset → normal child, amenorrhea + virilization after puberty

► **Investig.** ⇨ 17 α OH-P > 200 ng/dl → synth. ACTH 0.25 mg → **800-1200 ng/dl**

► Treatment

- Prednisolone for life to suppress ACTH production
- Surgical correction of external genitalia during the 1st 2 yrs of life

(4) MANAGEMENT OF AMBIGUOUS GENITALIA

History

- Maternal exposure to androgen
- Family history ⇔ CAH, AIS (TFS)

Physical examination

- *Measurement of the stretched phallus* (SP to the tip)
 - Normal clitoris < 1cm
 - Normal penis at birth 2.8 – 4.2
- *Inspection*
 - Location of the urethra (perineal, penile)
 - Labioscrotal fold fusion, vaginal pouch, urogenital sinus
- *Palpation*
 - Gonads (scrotum or inguinal canal)
 - PR → palpable cx (easy d.t. maternal estrogen)

Investigation

○ Karyotype

- Buccal smear (Barr body) → in 50 % only
Present under the nuclear membrane if 2 X chromosomes
∴ females are Barr (chromatin) +ve while males are -ve
- Examination of neutrophils → in 25 % only
A drum stick appearance due to attachment of the chromatin mass (if 2x) to one of the lobes of the nucleus
- Chromosomal culture
Skin, blood or bone marrow is cultured by special methods → determine the number & shape of chromosomes (karyotyping)

○ Hormonal profile

☞ E, T, DHEA-S, 17α- OH P levels, cortisol (blood or urine)

○ Examination of internal genitalia

- U/S, laparoscopy, laparotomy → histological examination of gonads
- CT, MRI of ovary and adrenal gland to diagnose a tumor

Treatment

- **Gender determination depends on**
 - External genitalia ⇔ to go with what fits more (female is easier)
 - Sex of rearing
- **External genitalia** ⇔ plastic surgery
 - Best age is > 3 yrs, artificial vagina > marriage
- **Gonadectomy** ⇔ if there is Y cell line
- **HRT** ⇔ started at puberty ('P' is a must if uterus is present)
- **Emergency situation** ⇔ correction of salt losing form of CAH